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<u>Priority 1–Need for Assistance:</u> (a) The costs of fully implementing the magnet schools project as proposed

<u>Introduction</u>: Community School Districts 25 and 30 in New York City have formed a consortium to apply for the Magnet Schools Assistance Program (MSAP). **Both Community School Districts 25 and 30 have not received funds under this program in the last fiscal year of the previous funding cycle.** The Districts 25/30 Consortium is applying for MSAP funding to establish two ***new*** magnet programs at PS 200 and PS 92. **These schools have never received MSAP funding.** The consortium will also significantly revise two schools – PS 201 and IS 145 that have lost their effectiveness. These schools became magnet schools in 1989 and 1993 respectively. By creating attractive magnet schools, the **Interdistrict Consortium provides an opportunity for students to expand their choice options by enabling students to cross district lines** to enroll in magnet schools with special curricula that would not otherwise be available to them.

<u>Districts 25 and 30 at the Crossroads</u> The Superintendents of Districts 25 and 30 have recognized that the growing urgency to promote both racial and socioeconomic diversity in their schools can only be accomplished by both districts working together. The two districts adjoin each other. Both districts have large concentrations of poor, minority students. However, in District 25 there are geographically clustered neighborhood schools in wealthier communities that have high concentrations of middle class, non-minority students. This is not the case for District 30. **The only way highly minority group isolated schools with large numbers of poor, Hispanic students in District 30 can become more racially and socioeconomically diverse is if students can cross district lines.**

There are also imperatives within District 25. Most of the District 25 schools are zoned, neighborhood schools. This also relegates many poor, minority students to schools that are racially and socioeconomically isolated.

In a borough where school overcrowding is a serious problem, many of the highly minority group isolated schools in Districts 25 and District 30 are not fully utilized whereas most of the schools with higher proportions of nonminority, middle class students in District 25 are overcrowded or are approaching full utilization. Many parents of students in more affluent communities in District 25 are expressing frustration and anger when their children "can't get in" their zoned schools. They are looking for alternatives to their neighborhood schools and are considering other schools in District 25, and are "eyeing" the possibility of new opportunities in neighboring District 30 schools if high quality education programs are offered.

In many cases, students in both districts are "trapped" within their school district boundaries when there are schools in another district that they could attend. The Community School Districts 25 and 30 Superintendents recognize this as a problem that can be solved. They developed the plan for this proposed magnet program that will open the district boundaries so that four highly minority group isolated and socioeconomically isolated schools (PS 92, IS 145, PS/MS 200, and PS 201) can have a chance to attract a larger pool of nonminority, middle class children within and across district lines, where schools that are predominantly nonminority have a chance to become more diverse through a larger and more diverse applicant pool, and where **all children can have more choices.**

New York City Desegregation Initiatives – A Common Purpose Across School Districts to Expand Choice: The Districts 25 and 30 initiative comes at a time that is especially hospitable for expanding choice. There is a new mayor – Bill de Blasio, who came into office in 2014,

and a new Chancellor who was appointed by the mayor and oversees all 32 school districts in New York City – Carmen Farina. Both have demonstrated their full commitment to equity and desegregation throughout their long careers. At the same time, outcries for racial and economic equity in the city's schools have been coming from the schools themselves. Thus, there is a unique convergence of grass roots commitment and commitment from the top that has led to concrete actions that will support the proposed magnet project and ensure its success.

On June 14, 2015, Mayor Bill de Blasio signed into law the **School Diversity Accountability Action Act** (Int 0511-2014 – Local Law 59), which amends the New York City administrative code, "in relation to requiring the department of education to report annually on student demographics in community school districts and high schools." The Act is intended to provide a better framework and data to advance the goals of more diverse New York City schools. NYC Council Member Brad Lander, co-sponsor of the NYC School Diversity Accountability Act, stated that this new legislation will not immediately desegregate schools but it is an important first step. When signing the law, Mayor de Blasio called it "a step further in our efforts to ensure that our schools are as diverse as our city and people of all communities live, learn, and work together." (Office of the Mayor, 2015)

This new city legislation came on the heels of a March 2014 report published by the UCLA Civil Rights Project, entitled the *New York State's Extreme School Segregation: Inequality, Inaction and a Damaged Future*, which found that the **New York City's schools are among the most segregated schools in the country** and that segregation has grown more extreme since 2000. (Kucsera & Orfield, 2014) **On the positive side**, **the UCLA Report indicates that magnet schools across New York City have the highest proportion of multiracial schools and the lowest proportion of segregated schools.**

Following up on the report, in December 2014, the City Council held an extensive hearing in which parents, educators, and civil rights advocates called on the city to take further steps to put NYC schools on a path toward integration as they invoked both the UCLA report and the 60th anniversary of the *Brown v. Board of Education* decision.

Also in December 2014, on a parallel track, the New York State Education Department under a **state Socioeconomic Integration Pilot Program** announced by Board of Regents Chancellor Merryl H. Tisch and former State Education Commissioner John B. King, Jr (currently Secretary of Education for the U.S. Department of Education), the state offered the city funding over the next three years to increase diversity at eight low-performing Priority and Focus Schools where at least 70% of students are considered poor. In total, in July 2015, the New York State Education Department awarded Socioeconomic Integration Pilot Program Grants to 20 schools across the state, of which eight are in NYC. This grant money, which comes from school-improvement money from the federal government, is intended to support programs that increase socioeconomic integration. The schools are developing magnet programs with the potential to attract higher-income students.

Following these initiatives, in November 2015 the **New York City Department of Education announced a Diversity Pilot Program** to start during the 2016-2017 school year, considered a significant step by the de Blasio administration toward desegregating NYC schools. Seven elementary schools will participate in this new pilot program. Under the program, which grew out of recommendations that the principals of those schools made to the NYC Department of Education in 2014, in school districts where neighborhoods are becoming more diverse and affluent, poor minority students will have increased opportunities to attend more racially and so-

cioeconomically diverse schools within their own communities. **These new desegregation programs and initiatives have set the stage for the proposed interdistrict magnet program.**

***Community School Districts 25 and 30 Background: The Impetus for the Project's Interdistrict Approach to Desegregation*.** District 25 consists of 42 elementary, middle and high schools. The 2015-2016 student enrollment for the district is 38,597. Approximately 14 percent (13.8%) are white, nonminority students and 86.2% are minority students (8% Black; 48.1% Asian; 28.7% Hispanic; and 1.4% Other including American Indian/Alaskan Native; Two/More Races; and Native Hawaiian/Pacific Islander). The poverty rate for the school district is 69.9%. (It must be noted that poverty is defined as students with families who have qualified for free or reduced price lunch, or who are eligible for Human Resources Administration [HRA] benefits. The poverty category also includes students who are enrolled in a Universal Meal School where students automatically qualify.)

District 30 consists of 46 elementary, middle and high schools. The 2015-2016 student enrollment for the district is 41,300. Approximately 16 percent (15.8%) are white, nonminority students and 84.2% are minority students (6.8% Black; 22.0% Asian; 53.6% Hispanic; and 1.8% Other including American Indian/Alaskan Native; Two/More Races; and Native Hawaiian/Pacific Islander). The poverty rate for the district is 82.1%. Thus, **there is a 12.2 percentage point higher poverty rate in District 30 than District 25.**

Districts 25 and 30 border each other and in many cases, the proposed magnet schools are located in the same communities. However, there are clear neighborhood demarcations and characteristics, which to a great extent drive the enrollments in the districts' zoned neighborhood schools. Both of the proposed magnet schools in District 25 are located in Flushing. One of the proposed magnet schools in District 30 is also located in Flushing. Flushing is a large communi-

ty consisting of 219,342 residents in Queens, NY (according to the 2010 census, the most recent available data). Flushing's diversity is reflected by the numerous ethnic groups that reside there, including people of Asian, Hispanic, Middle Eastern, European, and African American ancestry. The estimated median income of Flushing residents as of 2015 is $39,804.

Another neighborhood in District 30 in which a magnet school is located is Corona. This is a community that has changed dramatically over the years. In the 1950s what was predominantly an Italian American and African American neighborhood gave way to an influx of Dominicans. In the late 1990s, Corona saw a new wave of mostly poor immigrants from Latin America who now represent the majority of the community. According to the 2010 census data, the total population of Corona is about 110,000 and is overwhelmingly Hispanic.

The communities in which the seven feeder/sending schools are located (schools where the goal is to attract students who would ordinarily attend these schools to voluntarily enroll in the magnet schools) are in vastly different communities than the ones described above. Six (6) of the seven District 25 feeder/sending schools are located in the affluent community of Whitestone in Queens. One of the subsections of Whitestone is the Malba community, which was cited in a New York Times article as one of the few "elite enclaves" in Queens. The total population as of 2010 was 39,719. The estimated median income of Whitestone is $76,834. This is almost twice as much as the median income in Flushing ($39,804), where three of the proposed magnet schools are located. Finally, one of the proposed feeder schools is located in Bay Terrace, which borders Whitestone. This community is an even more affluent with an estimated median income of $103,263. <u>Nothing highlights the legacy of the disparate neighborhoods, and the two-tiered system that has evolved from the neighborhood schools than the numbers themselves, summarized in the tables below for the proposed magnet schools and feeder/sending schools.</u>

District	Magnet Schools/Enrollments	Location	% Min. Target Group *	% Poverty	% Proficient NYS ELA/ Math Assessments
25	PS/MS 200/ PreK-8 481	Flushing	46.4% Hispanic	71.7%	31.6%/ 30.6%
25	PS 201/ PreK-5 507	Flushing	40.6% Black	100%	30.2%/ 36.3%
30	PS 92/ PreK-5 860	Corona	95.8% Hispanic	100%	11.1%/ 19.0%
30	IS 145/6-8 1,923	Flushing	89.0% Hispanic	94.3%	19.5%/ 27.85

*District 25 districtwide average for Hispanic students is 28.7%, and districtwide average for Black students is 8.0%. District 30 districtwide average for Hispanic students is 53.6%

District	Feeder Schools/Enrollments	Location	% Non-Min. *	% Poverty	% Proficient NYS ELA/ Math Assessments
25	PS 79/PreK-5, 1073	Whitestone	33.5%	51.5%	52.1%/ 70.1%
25	PS 169/PreK-5, 420	Bay Terrace	39.5%	32.4%	48.8%/ 59.5%
25	PS 184/PreK-5, 523	Whitestone	45.9%	45.7%	47.5%/ 65.0%

District	Feeder Schools/Enrollments	Location	% Non-Min. *	% Poverty	% Proficient NYS ELA/ Math Assessments
25	PS 193/PreK-5, 548	Whitestone	53.8%	39.1%	42.8%/ 61.3%
25	MS 194/ 6-8, 1108	Whitestone	33.0%	55.0%	44.5%/ 51.4%
25	PS 209/PreK-5, 581	Whitestone	38.8%	35.9%	61.1%/ 73.6%
25	MS 294/6-8, 367	Whitestone	34.1%	49.9%	53.4%/ 51.4%

*****Districtwide average for nonminority students is 13.8%

In summary, the proposed District 25 and District 30 Interdistrict Consortium will build on recent New York City and New York State initiatives to diversify schools in New York City, both racially and socioeconomically. Now is the time that the Magnet Schools Assistance Program can have its greatest impact in Districts 25 and 30. Without an interdistrict program, where students can cross district lines and enroll in schools outside their home districts, many students will be “trapped’ in low-performing, racially and socioeconomically isolated schools. Two new magnet schools will be established and two will be significantly revised.

Districts 25 and 30’s vision for the magnet schools is both ambitious and feasible. NYC's, the districts', and the schools’ commitment to desegregation and structures to fully transform the schools are in place. And the schools must do nothing less than transform themselves if they are to attract a more diverse group of students to attend. They are ready

and committed to do so. According to the most recent 2015 NYC School Survey Reports, teachers and parents overwhelmingly agree that the schools have supportive environments, effective school leadership, strong family-community ties, and high levels of trust. These are important prerequisites for successful magnet programs. **However, the schools do not have the <u>resources</u> to provide, as examples, the level of professional development, curriculum development, and technology, that transformation requires.**

MSAP funding will provide the "missing piece." The schools will build on frameworks, initiatives and services that are in place to support students, including the NYC *Framework for Great Schools* and NYC *STEM Framework* (which will be discussed in detail in the *Project Design* section). Further, all proposed magnet schools provide student support services, at no cost to the project, to assist students. **Districts 25 and 30 believe that the combination of the new Chancellor's academic frameworks and initiatives, student support services offered by the schools <u>AND</u> the magnet program that will build a solid, rigorous unique theme-based instructional program that is fully aligned with the Common Core and state standards, is a <u>powerful model</u> for attracting a diverse student population and improving academic achievement for all students at the schools.**

<u>Costs of Implementing the Magnet Schools Program as Proposed.</u> The Districts 25/30 Consortium is requesting $3,500,000 a year in funding from the Magnet Schools Assistance Program; however it will also devote its own resources to the project. Funding from the MSAP will cover the following costs: a full-time magnet director; a full-time magnet STEM/curriculum planner; a full-time magnet project community outreach specialist; 9.5 full-time magnet resource specialists/teachers to assist classroom teachers in implementing the specialized STEM integrated curriculum programs at the magnet schools; a half time secretary, contractual services for an

evaluation firm to conduct an independent evaluation, including a rigorous, quasi-experimental design; support from consultants to conduct staff training for classroom teachers to implement the specialized curriculum, including STEM, and systemic reform initiatives to enhance the core curriculum at each magnet school site; and equipment and supplies to support theme implementation in each school.

These are reasonable funding requests that are essential to the proper implementation of the magnet schools. However, these costs are only a portion of the overall yearly costs of the project. As tangible evidence of District 25's and District 30's commitment to promoting desegregation, the districts are providing substantial **in-kind** services to the project each year, as described below. **Personnel:** Districts 25 and 30 will provide all necessary school-level teacher and principal support at each magnet school to fully implement the program, at no cost to the project**.** **The total in-kind costs for these positions will be $[redacted] . Facilities:** All school facilities, including classroom materials and supplies (e.g. textbooks, reference books, library materials, computer software), and instructional supplies. **The total annual in-kind facilities costs will be $36,215. Transportation:** The magnet schools are located across district lines from the proposed feeder schools, requiring additional transportation costs. Further, all the magnet schools have field trips as critical components of their curriculum. Transportation to these sites will also be needed frequently. Districts 25 and 30 will absorb these transportation costs at no cost to the project. **The total annual transportation costs will be $66,167 Office Personnel and Supplies:** Office personnel in the district offices and supply costs associated with the implementation of the magnet schools program will be absorbed by the districts. **The total annual costs of office personnel and supplies will be $39,400. Total Annual In-kind Contributions:**

$14,690,295 The true costs of the proposed MSAP program include these in-kind costs and the **$3,500,000** a year requested from the US Department of Education, for a total of **$18,190,295.**

Priority 1—Need for Assistance: (b) The resources available to the applicant to carry out the project if funds under the program were not provided.

Districts 25 and 30 face the challenge of providing rigorous, standards-based instruction to a growing number of students, many with complex needs, without an adequate budget. The costs of implementing the proposed magnet schools project enumerated above are tremendous, far beyond that which can be provided by the districts. The difficulty of financing educational programs is exacerbated by the tremendous inequities that Districts 25 and 30, along with other NYC districts, face in respect to state aid. It has long been evident that, compared to other districts of New York State, New York City districts receive a disproportionately small share of the state's education budget, despite the critical needs of the city. The Campaign for Fiscal Equity's (CFE) lawsuit challenging these inequities and the constitutionality of NYS's education funding system began more than twenty years ago. The Equity Reform Project partners - Educational Priorities Panel, Foundation for Citizen Education of the League of Women Voters of NY, Urban League of NYC and Schuyler Center for Analysis and Advocacy - lent their support to CFE's suit, creating a citizen's mandate for school finance reform.

Although the CFE lawsuit was first filed in NYS Supreme Court in 1993, a final ruling was not made until 2006, when the New York Court of Appeals affirmed the 2003 State Supreme Court's ruling calling for increased funding for NYC schools, a total of $1.93 billion to be phased in over a 4 year period. Justice Smith, in his 2003 concurring argument asserted that

"Year after year the formulas have consistently failed to measure the actual costs necessary to provide New York City students with a sound education" (Campaign, 2006)

As part of the 2007 Education Budget and Reform Act, then Gov. Eliot Spitzer pledged to phase in $7 billion in additional funding over five years, with $5.4 billion to New York City alone, and established the Foundation Aid system, intended to replace over thirty types of categorical supports in order to aid students in poverty, English language learners, and those with disabilities, accounting for local income property values, while increasing transparency in funding. However, the 2009-10 state budget froze these funding increases. And in 2011, the State Legislature's overall $1.3 billion cut in education aid brought financing levels roughly back to pre-lawsuit levels (Otterman, 2011). In reaction to the ongoing budget cuts, in November 2012, the Campaign for Fiscal Equity alerted Governor Cuomo that New York State is $5 billion behind on the 2007 financing agreement and according to CFE, "the state's underfunding of our public schools is so severe that it amounts to a violation of its constitutional obligation to provide New York's children with adequate education resources" (Hakim, 2012).

According to a 2014 report by the Alliance for Public Education, the state of New York owes school districts $4.9 billion in Foundation Aid funding, of which over $2.2 billion is owed to New York City school districts, more than other districts outside New York City and twice as much as wealthier districts. An additional $249 million is owed to New York City districts in Gap Elimination Adjustment funds to reinstate cuts to state aid dating to 2010. Despite pleas for increased funding from interested parties from across the state, including the New York Board of Regents, the NYS Association of School Business Officials, the Alliance for Quality Education, and 83 members of the NYS Assembly and Senate, the 2014-2015 budget was $1.1 billion, short of meeting the obligation outlined in CFE ruling (Marcou-O'Malley, 2014). The allocation of

Foundation Aid to New York City schools, outlined in the Contract for Excellence, fell by over $112 million from the 2009-10 to 2011-12 school year and has remained at that level through 2014-15 (NYC DOE, 2014).

New York City districts' annual per pupil expenditures continue to be lower than their surrounding suburban school districts. The massive cuts in state education aid have escalated the spending gap between poor and wealthy districts. According to an analysis conducted by the Citizens Budget Commission of New York, New York City districts spent $19, 770 in total instruction and support costs in the 2010-11 school year (the most recent year available), down from $20,276 in the 2009-10 school year. Conversely, suburban school districts in the adjoining counties, Nassau and Westchester, spent considerably more. As examples, Lawrence (in Nassau, which is less than 10 miles from NYC), spent $30,583 per pupil and Greenburgh (in Westchester, which is less than 15 miles from NYC), spent $32,055 per pupil, a difference of greater than $10,000 per pupil in these suburban school districts (2015a). This is typical of the disparities in per pupil expenditures between NYC districts and their surrounding suburban school districts. The "real" discrepancy is even greater since the costs of NYC districts providing educational and other services for the large number of students with special needs are higher.

Although the state budget for FY 2016 includes an increase of $1.3 billion in formula-based aid to districts, nearly half of these funds are intended to repay deductions resulting from the Gap Elimination Adjustment to wealthier districts. New York City schools will only receive an increase of 4.53% in total aid per student despite having an above average level of student need. Conversely, the wealthier Great Neck Union Free School District, located just 20 miles from NYC and having a below average level of student need, received an increase of 11.77% (Citizens Budget Commission, 2015). In the face of continued funding disparities, New York

City, consisting of districts with large numbers of students living in poverty, learning English, or coping with a disability, will be unable to meet the educational needs of all of its students. In order to fully implement a rigorous thematic academic program, additional funding, beyond current state and federal levels, will be required.

Priority 1—Need for Assistance: (c) The extent to which the costs of the project exceed the applicant's resources

As is demonstrated above, Districts 25 and 30 are financially strapped. While neighboring districts in Westchester and Long Island, New York spend over $30,000 per student, New York City districts can afford to spend less than $20,000 per student. And the budgets must be stretched further than it might be in more affluent suburbs. Many students in Districts 25 and 30 have special needs, including English Language Learners and students with disabilities. Combined, Districts 25 and 30 serve 10,780 students with disabilities (13.5% of their total student enrollments), and 13,317 English Language Learners (16.5% of their total student enrollments). It is clear, that **while Districts 25 and 30 are firmly committed to the magnet school project and will make available as many resources as possible, the costs of fully implementing the project far exceed their current resources.**

Priority 1—Need for Assistance: (d) The difficulty of effectively carrying out the approved plan and the project for which assistance is sought, including consideration of how the design of the magnet schools project–e.g., the type of program proposed, the location of the magnet school within the LEA–impacts on the applicant's ability to successfully carry out the approved plan successfully.

The Magnet Schools Assistance Program approved plan and project that Districts 25 and 30 are proposing would be extremely difficult to carry out without MSAP support. As part of the design of the project, the proposed magnet schools have large numbers of minority students, many of whom are living in poverty (ranging from 71.7% to 100% poverty at the project schools) and have special needs (13.5% of the combined enrollments at the magnet schools consisting of students with disabilities and 16.5% of their combined enrollments consisting of English Language Learners). Because of the lack of resources, students are barely receiving adequate basic educational services. It will take all the resources that have been requested to provide the enrichment services that all students deserve and to create high achieving school climates and environments at the magnet schools that will attract students from diverse backgrounds to voluntarily enroll in the schools necessary as part of the approved plan. It will take a substantial investment in professional development, curriculum development and alignment, coaching, mentoring, upgraded equipment, new supplies, and the like for these schools to become competitive, attractive alternatives to higher achieving schools in the districts. **Parents have to be confident that the magnet schools have been transformed, that the quality of teaching is at the highest level, and the schools have programs that will enrich the education of their children.**

The districts will undertake an ambitious interdistrict project where students will be enrolling in schools outside their neighborhoods. The locations of the schools make it difficult to carry out the desegregation plan. Combined, Districts 25 and 30 comprise a very large geographical area in Queens, New York. Their combined student enrollment is 79,897 and the combined geographical area of the districts includes a large part of the borough of Queens. The configuration of the Interdistrict Desegregation Plan is such that students who are attracted to voluntarily enroll in one of the magnet schools may have to travel long distances across district lines requir-

ing additional transportation costs. Even though the districts are financially strapped, they will absorb these extra transportation costs, at no cost to the project, but cannot provide other resources to ensure high quality magnet programs. The combination of the costs of transforming the magnet schools and the location of these schools will make it extremely difficult to carry out the proposed magnet project without MSAP funding.

Priority 4— Promoting Science, Technology, Engineering, and Mathematics (STEM) Education

The Districts 25 and 30 Interdistrict Consortium will provide STEM education by integrating science, technology, engineering, and mathematics concepts throughout each magnet school. The magnet program is designed to engage students in authentic real world STEM experiences and to give educators access to high-quality STEM related professional learning in order to improve student achievement. **Local and regional partnerships will play an important role in these efforts, both in-school and in out of school settings.**

The STEM educational program at the proposed magnet schools will follow key elements described in the priorities listed in *Federal Science, Technology, Engineering, and Mathematics (STEM) Education 5-Year Strategic Plan* (Committee, 2013) including improving STEM instruction and increasing and sustaining youth and public engagement in STEM. These Federal STEM priorities are echoed in and align with the *NYC STEM Education Framework* which focuses on improved STEM curriculum and instruction and strategic partnerships.

All Project Schools Are STEM Schools: By structuring instructional time through thematic units, the magnet schools will integrate STEM throughout the curriculum – whether the school's thematic focus is math and science or the school integrates STEM, through STEM con-

nections, with another thematic focus such as global studies and leadership. There are two STEM schools in the project configuration, PS 92 and PS 201. The other schools will integrate STEM instruction into their thematic curricula in significant ways.

Project-Based Learning (PBL) will be the foundation of STEM instruction in all schools. Students will be immersed in a variety of hands-on/minds-on learning experiences that are interesting, stimulating and relevant to their lives. The PBL projects will provide an entry point for learning as well as for products for performance-based unit assessments, including exit projects. Students will begin with a complex question or problem that guides the inquiry process through rigorous, in-depth classroom projects spanning a period of weeks. Projects will gain in length and complexity as learners move through the school year, while teachers will move from structured to guided to independent inquiry techniques, as students gain knowledge and skills, supporting transdisciplinary instruction.

This approach will ensure that adequate instructional time is devoted to STEM content. Instructional time for STEM in the magnet schools will be greater than in typical schools. All math and science instruction will be based on the NYC STEM Framework and curriculum in math and science. By using cross-curricula STEM practices integrated into other content areas, as well as discrete STEM coursework, students will receive additional instructional time in math and science. Adequate instructional time, combined with high quality partnerships, NYC DOE and project staff supports, intensive professional development, improved core curriculum and STEM infused thematic instruction, and authentic parent involvement are at the heart of the project's plan for **improved student achievement**.

Students in all magnet schools will use STEM practices including: asking questions and defining problems; developing and using models; planning and carrying out investigations; ana-

lyzing and interpreting data; using mathematics and computational thinking; constructing explanations and designing solutions; and obtaining, evaluating, and communicating information. Approaching problems and developing solutions like STEM professionals, students will learn to construct arguments by backing up their claims with evidence, explain their thinking, and develop both conceptual *and* procedural skills.

The following are examples of formal (in-school) and informal (out of school) STEM instruction in each magnet school that are cross-disciplinary and PBL based. Please see section (b) Quality of the Project Design for a complete description of magnet theme activities for each school.

PS 92: Engineering, Architecture and the Arts Magnet School. **In School** : As 2nd graders learn about "Urban, Suburban and Rural Communities," students will research the arts and architecture of rural and suburban localities using the Internet and library while taking walking tours of the neighborhood to examine urban life. Responding to the essential question: "How do we shape our environment?," students will construct an argument supported by evidence that addresses how we shape our environment and/or are shaped by our environment. Reading Gail Gibbon's How a House is Built, factoring in CCLS **2.5:** *Geography and natural resources shape where and how urban, suburban, and rural communities develop and how they sustain themselves*, students will make inferences about urban home construction. Studying human habitats in urban, suburban and rural communities via Google Earth, students will respond to the design challenge to build a living space for a family in one of the three locations using AutoDesk to generate blueprints before constructing a prototype in the MakerSpace**. Out of School:** As extensions of in-school activities, the Center for Architecture will provide student workshops at their facilities on such topics as architecture in your neighborhood and green and sustainable architec-

ture and design. Students will visit the Morgan Museum to learn about architecture, such as their current exhibit "Off the Wall Math-Geometry and Architecture" and incorporate this information as background knowledge to design their own buildings at the Queens Museum.

IS 145: The Magnet School of Innovation and Applied Learning. **In-School:** Students will engage in transdisciplinary STEM activities through applied learning principles – problem solving, communication, learning and self-management, and working with others. Students will be engaged in PBL projects related to such areas as global warming, pollution, and sustainable agriculture. Projects will include tracking weather data to understand its impact on plant health. Through researching composting and designing composters, students will use technologies and engage in the engineering design cycle. One possible PBL project ("How can our school save energy?") The school building will be looked at as both a laboratory for learning and a tool for environmental change: encouraging class- and school-wide sustainability projects that incorporate STEM. They will understand the tradeoffs in terms of the rewards and negative consequences of people's decisions. **Out of School**: As an extension of in-school activities, New York Institute of Technology (NYIT) will work with teachers and students to develop service learning projects for students with local "green" energy developers and companies. Students will also participate in the BEAM Center's Exploratorium After School Tinkering Program and NYIT's after school robotics clubs and engineering and design classes.

PS/IS 200: The Magnet School of Global Studies and Leadership. **In-School:** STEM will be woven seamlessly into global studies and leadership. The design process that engineers use (ask, imagine, plan, create, and improve) will drive all performance tasks. As an example of a PBL project, students will design farm equipment that can be used in specific countries across the globe. Through research that takes place before the design process, students will learn about

rainfall, climate, and environmental issues related to the countries they are designing for and record all findings. Mathematical thinking and skills will also be integrated into this project through measurement, number manipulation, proportional thinking, finding patterns, and exploring spatial and geometrical relationships. Technology will be used as a tool to access information, present and archive performance tasks, communicate with students throughout the world via ePal, and transport students across continents through Google Earth. **Out of School:** As an extension of in-school activities, students will participate in service learning projects with local mentors from Big Idea Week to design products that will benefit the school, such as constructing solar panels for use in the light fixtures on the school's campus. Another possible service learning project is working with IT experts to conduct technology workshops for the elderly.

PS 201 STEAM School: **In-School:** Many aspects of STEM education are about creativity, so the addition of the arts to STEM, to create the Science, Technology, Engineering, Arts, and Mathematics (STEAM) school, is especially exciting. The arts will be integrated into STEM through, for example: (1) creating a dance, taped by multimedia/video to illustrate the concepts of rotation and revolution; and (2) learning about light and color and then creating works of visual or conceptual art that illustrate what students learned. For example through one PBL project with the driving question: "What is special about paint?", students will learn science and math concepts through art and engineering activities related to ratio, proportion, scale, and matter. First students will learn about ratio, scale and the properties of matter by designing multicolored LEGO creations using LEGO Ratios. Students will learn the aforementioned math concepts by designing two identical structures in different sizes, and they will learn about matter by exploring the properties of solids by comparing plastic LEGO "bricks" to clay and cement bricks. Next, students will further explore ratios and the properties of matter (liquids/paints) by mixing differ-

ent colors and amounts of paints to create an original painting. Through this project, students will also learn important visual arts concepts involving color, shade and color mixing. **Out of school:** The National Museum of Mathematics will provide student sessions on shapes, sym- metry and patterns as the foundation for mathematical thinking. Students in grades 2-5 will work in the Tessellation Station, studying math from nature to art to architecture. NYIT will provide after school STEM enrichment programs, including Little Bits and LEGO robotics clubs and en- gineering and design classes.

Regional and Local Partnerships: The proposed magnet project will be built on regional and local partnerships to support STEM instruction, described above. Opportunities for STEM learning will occur through effective engagement across classroom and out-of-school settings.

NYC STEM Education Network. The NYC STEM Education Network develops strong collaborations between city agencies, youth development organizations, as well as educational and cultural institutions. It also coordinates communication with schools and partners including the STEM Educators Academy (ExpandED, 2014), which is the STEM leg of the ExpandED Schools Network (ExpandED, 2016). It was announced (Traill, 2015) by the Network that NYC is one of twenty-seven communities selected to be part of the initial cohort of a national Community of Practice which seeks to nurture and scale effective STEM learning opportunities. The proposed magnet project will both learn from identified effective STEM projects and contribute to the knowledge base of such stragegies as the project builds model STEM programs through partnerships with community organizations, higher education, businesses, and parents.

Project-based learning (PBL) will be facilitated by the Buck Institute for Education (BIE) project partner. The Buck Institute is a nationally renowned project based learning professional development provider. BIE will provide teacher training on how to design, assess, and manage projects that engage and motivate students across grade levels and subject areas. Teachers in each magnet school will receive training from Buck Institute faculty, including their PBL 101 workshops and sustained support visits. The PBL 101 workshop is Buck's three-day school-site workshop. The workshop models the PBL project process. It is a balanced blend of direct instruction, video analysis, hands on work, resource sharing, and peer collaboration and feedback. Participants are actively engaged in project design, with the expectation that every teacher or teaching team will generate a project plan that receives formative feedback from both participants and BIE faculty. BIE will also provide a minimum of 2 sustained support visits for each school, depending on the needs and schedule determined by each school. The sustained support visits provide on- site instructional coaching for participants in the workshops. After a survey of teachers in each school, BIE uses the results to develop tailored sessions to support teachers in developing PBL units and projects and implementing them in their classrooms. PBL training provided by BIE will be followed-up in classrooms by the project resource teachers in each school (coaching and mentoring), guided by the STEM/curriculum planner and facilitated by the STEM local partners, discussed below.

Local Partnerships: Each school will partner with a full array of local partners that will support authentic STEM learning for students and high quality training for teachers. The major STEM partnerships are the BEAM Center, Big Idea Week, the New York Institute for Technology, and the Center for Technology and School Change at Columbia University. Other essential partners specific to each school's theme, (e.g., Salvadori Center at PS 92: the

Engineering, Architecture and the Arts Magnet School; The New York Hall of Science at PS 201: A STEAM Magnet School; Reach the World at PS/MS 200: The Magnet School of Global Studies and Leadership; and Project Lead the Way at IS 145: The Magnet School of Innovation and Applied Learning;) are described in the schools' theme descriptions in the *Project Design* section.

The BEAM Center provides STEM and design/art-based education, youth mentorship, and professional development for educators. The BEAM program uses digital fabrication and a constructivist approach to learning that is centered on project based learning. Students learn skills in welding, physical computing, carptentry, ceramics, textiles, video, programming and design as they create their STEM projects both in school and at the Center. The BEAM Center currently serves over 2,000 public school children in New York City. Training for teachers uses the research based Connected Teaching (Transformative, 2013) as its professional development methodology, a methodology that brings principled constructivist pedagogy together with the new technologies of the Makers Movement. The Center will bring the formal sector for students and teachers together with the community based informal sector, particularly around project based learning practices at the magnet schools, both in school and out of school.

Big Idea Week is a local partner that came about as a result of discussions with the community organization Business Improvement District (BID) in the DUMBO community in Brooklyn. DUMBO has had a post-industrial renaissance and tech companies have flocked to the neighborhood. The community organization (BID) asked the Big Idea Week founder if he was interested in designing an educational program that would build a bridge between its thriving business community and the local elementary school, PS 307, which had just become a magnet school. Big Idea Week is now in its third year. It began with one school in Brooklyn and now

serves over 1,200 students in 20 schools in Brooklyn and Queens and has over 80 business mentors. The program is sponsored by the Flocabulary organization. The group brings together mentors from the New York City tech and design industry to work directly with students and teachers in grades 4-8, both in school and out of school, to see real-world problems as opportunities for innovation. The program has become a model of project-based learning, connecting STEM to real world problems and teaching young students about entrepreneurship, 21st century skills and careers, and new verticals of success. Big Idea Week partners include Facebook, BioLite, Etsy, MarkerBot, and Urban Matter, Inc., among others. The culminating activity of Big Idea week is where students, having developed products guided by tech and design industry experts, "pitch" them to the experts. The program requires weeks of prepration, with a set of materials and rubrics both for teachers and students, including a Big Idea Week School Coordinator's Guide, Big Idea School Teacher's Guide, Big Idea Student Packet, Big Idea Challenge Worksheet for Students, Student Pitch Evaluation Rubric for Teachers, Pitch Evaluation Peer Rubric for Students, and Student Presentation Training. After Big Idea Week presentations, students continue their work with their mentors on STEM projects, both in school and at the mentors' work sites.

The New York Institute of Technology (NYIT) will provide a full range of services to support STEM instruction in the schools and high quality STEM related professional learning for teachers. NYIT's faculty and students (undergrad and/or graduate) will work directly with magnet teachers and students to develop STEM themed Service Learning projects that provide students with hands-on STEM experiences and connect them with actual STEM professionals, mentors, STEM-major college students, nonprofit organizations, and businesses. NYIT will use their faculty and students to help magnet teachers integrate STEM education into the themed PBL

units they create through Buck Institute, as well as facilitate the implementation of these units. In other words, Buck Institute will teach teachers to write PBL units and NYIT will help teachers to add the STEM components and implement them. NYIT will use students and resources from campus-based clubs and national societies to develop and implement STEM themed residencies, after school programs and enrichment activities. For example, students from the National Society of Black Engineers (NSBE) and the Society of Women Engineers (SWE) will conduct Little Bits and Lego robotics clubs, engineering classes, and sound design classes. Not only will this provide opportunities for students to receive STEM themed instruction, but it will allow them to interact with college students, and it will address issues such as the achievement gap and a lack of female representation in STEM fields by having students involved with organizations (such as NSBE and SWE) whose missions revolve around these issues.

Project schools will use the local partners to develop authentic STEM learning opportunities inside of school and extend them outside of school. Each partner institution will develop activities for students that will be integrated with transdisciplinary STEM units and provide students with authentic STEM experiences tied to the magnet theme <u>in the field</u> (e.g, community service learning projects facilitated by NYIT) <u>at their institution</u> (e,g, mentors from Big Idea Week and BEAM Center staff facilitated projects.), and <u>in their school</u> (e.g. Big Idea week mentors, NYIT STEM themed residencies, after school design classes facilitated by the BEAM Center). Partner institutions will also create activities for families, aligned with the activities for students <u>at home</u> (e.g., projects students and family members can do together to reinforce what students are learning in school), and <u>school</u> (e.g., family science meetings where students present projects or work on projects with their families.)

Project schools will also use the local partners to strengthen teachers' STEM-related content knowledge and pedagogical knowledge, critical for the success of the magnet schools. In addition to the partners discussed above, schools will partner with **the Center for Technology and School Change** (CTSC) at Columbia University to provide STEM training. CTSC will meet with school teams to target specific technology and education needs and available resources to help them develop customized plans for change. The Center will provide in depth, ongoing PD and action research that engages teachers as designers of student-centered, authentic learning experiences that leverage digital tools to facilitate student inquiry (trainers will work with teachers and school leaders to use the technology they have in the building---or to purchase relevant new technology---to create technology rich, student-centered, 21st century learning environments). To ensure sustainability of the magnet activities, the Center will support the schools in guiding and sustaining technology and change initiatives, while positioning teachers as agents of change and helping schools to create sustainable programs, structures and systems for the integration and use of technology in an ever-changing technological landscape.

The goal is to produce teachers with high capacity to teach STEM in their disciplines. Through a combination of **strategic partnerships** with STEM partners, described above, and **job-embedded professional development,** teachers in the magnet schools will receive the support they need in order to implement high-quality STEM education throughout the curriculum.

In order to ensure that PD translates into improved practice at the classroom level, each magnet school will have magnet funded resource teachers who will **guide job-embedded, school-level professional development,** including STEM training, necessary to implement the magnet theme in each school. The project STEM/curriculum planner will work with the schools' magnet resource teachers (MRTs) and other school staff to facilitate high level professional de-

velopment in STEM content and pedagogy. Together, the STEM/curriculum planner, the MRTs and other school stakeholders will work with the STEM PD providers to develop a PD plan for each school to ensure that all STEM PD is tailored to meet the needs of teachers in each school and the PD is well coordinated. The MRTs, supported by the STEM/curriculum planner and PD providers, will work with classroom teachers on developing STEM tasks, lesson plans, rubrics, etc. and guide them with the "big ideas" behind STEM and appropriate essential questions as teachers develop their own curricula units. The MRTs will support school level STEM implementation through demonstration lessons, coaching and mentoring.

To further guide and support classroom teachers in STEM implementation in the classroom, each school will establish a Professional Learning Community (PLC) that will encourage teachers to think and learn about STEM curriculum practices that have direct applicability to their classrooms. Guided by the schools' MRTs, and supported by the STEM/curriculum planner and project partners, classroom teachers will learn about: (1) the new literacy, math, and science standards; (2) how to interpret STEM data for traditionally underrepresented groups of students (e.g, girls, minority students, ELLs, and disabled students); (3) how to differentiate STEM instruction to create learning opportunities of all students to ensure equal access to new STEM academic content; and (4) how to develop curriculum units aligned to the new standards.

Priority 5— Supporting Strategies for which there is Evidence of Promise

Citation: Bifulco, R., Cobb, C. D., & Bell, C. (2009). Can interdistrict choice boost student achievement? The case of Connecticut's interdistrict magnet school program. Educational Evaluation and Policy Analysis, 31(4), 323–345. **Rating: Meets WWC group design standards without reservations.** Reviewed using: Single Study Review Protocol.

Citation Outcomes: 1) The outcomes in the study presented and how those outcomes are statistically significant. The paper contains two components. An experimental and a quasi-experimental study. The most relevant outcome and the WWC rating relates to the experimental study which found that students who attended two interdistrict magnet schools in Connecticut had higher test scores in reading and math than students who attended non-magnet schools in the same region of the state. These results were positive and statistically significant for eighth grade students. The effect sizes were .138 for math and .278 for reading. (See p. 335 of study.)

2) How the outcomes in the evidence relate to the outcomes in your project:

The outcomes for the study were higher state test scores in mathematics and reading for students attending magnet schools when compared with similar students attending non-magnet schools. The Districts 25 and 30 Interdistrict Consortium is proposing magnet schools with the same characteristics as the study schools (please see below) serving similar populations of students and is expecting that by the end of the project period, reading (ELA) and math test scores of magnet students, on state tests, will be higher than students in non-magnet schools as determined by a quasi-experimental study.

Relevance to the Proposed Project: The experimental component of Bifulco et al., focused on two Connecticut interdistrict magnet schools operated by the Capitol Region Education Council (CREC) in Hartford, Connecticut. The schools included in the study serve students from a city, Hartford, with high levels of racial and ethnic isolation, and its surrounding suburbs, with lower proportions of Black and Hispanic students and students who are eligible for free lunch. The New York City School Districts 25 and 30 Interdistrict project's proposed magnet schools in School District 25 and School District 30 will also draw students from schools that have lower proportions of Black and Hispanic students and students who are low income. The populations

of the schools in the study are similar to the population of the magnet schools in this proposal. The students in the project magnet schools in School District 25 and School District 30, like Hartford, are mainly Hispanic and African-American and serve the magnet schools' large numbers of low income students. The two CREC magnet schools in the study serve students in grades 6-8 and in grades 6-12. The statistically significant results in reading and math were for grade 8 students. The schools in this proposal serve students in grades 6-8 (one school), PreK - 8 (one school), and PreK-5 (two schools). The Districts 25 and 30 magnet schools will serve students similar to those served in the study. We believe that the study is relevant for all schools in the project (schools with elementary and middle school grades). However, it may be most directly relevant to schools with middle school grades.

The intervention, in both Hartford and the Districts 25 and 30 Interdistrict magnet program, is to implement a magnet school, as defined by Connecticut statues and regulations and the MSAP program. These programs define magnet schools in virtually the same way. The attributes of both sets of schools include: ► a special curriculum that is capable of attracting substantial numbers of students of different racial backgrounds. That means that the curriculum of the school must be unique for its city or region (e.g., for the students who are eligible to apply to the school). ► a mandate to have racially/ethnically diverse populations than the schools that students previously attended. That usually means reducing the minority group isolation of one or more groups of students in the magnet school. ► serve students from a city and its surrounding suburbs (or in the case of the proposed project, from schools with substantially larger proportions of white, middle class students). ► selecting students through a random lottery that does not use race as a selection factor. ► having no academic selection criteria. ► the goal is to improve stu-

dents' academic achievement. We believe that Bifulco et al., provides evidence of promise for the Districts 25 and 30 Interdistrict magnet model.

The foundation of a magnet school is its special curriculum that is capable of attracting students from different racial/ethnic backgrounds. Therefore, the logic model component that is supported by the intervention is the output Quality Magnet Curriculum, which is the special curriculum capable of attracting students from different racial and ethnic backgrounds.

As with most magnet school studies, test scores were important outcomes of Bifulco et al. They studied two schools using an experimental design and then performed a larger study (many more schools and students) using a quasi-experimental design because it was difficult to obtain carefully matched random samples for the larger number of schools. The experimental study used student selection lottery winners as the treatment group and students who applied to a school but were not selected in the lottery as the comparison group, which was not possible for the larger group of magnet schools. With that said, Bifulco et al., (2009) found that the quasi-experimental design study, which controlled for student demographics and prior achievement, and drew comparison students from the same district, produced results of comparable reliability to the experimental approach.

As evidenced in a recent, meta-analysis of five MSAP evaluations by the Center for Research on Evaluation, Standards, and Student Testing (CRESST) at UCLA, the fidelity of implementation of the proposed plan is an essential component of successful magnet schools. As such, the New York City Districts 25 and 30 Interdistrict program will utilize a robust evaluation plan, described in detail later in this proposal, to ensure that all activities are implemented as designed. Noting the methods utilized by Bifulco, et al., a quasi-experimental design that meets the What Works Clearinghouse evidence standard will be used to examine test scores of grades 3

through 8 students in the Districts 25 and 30 magnet schools. The study will be performed by the CRESST Center. Dr. Joan Herman will be the principal investigator and Dr. Jia Wang will be the co-principal investigator and project director. The UCLA team has many years of experience conducting similar studies of magnet schools (e.g., CREC-Hartford, Los Angeles), charter schools (e.g., Green Dot) and studies that were used in i3 validation and scale up grants (e.g., Literacy Design Collaborative).

The evaluation questions for this study are: 1. How did students attending the magnet schools participating in this grant perform on state tests in relation to matched students at non-magnet comparison schools in Districts 25 and 30?

2. How did different subgroups of students attending these magnet schools perform in relation to matched students at non-magnet comparison schools in Districts 25 and 30.

The expectation is that students at the magnet schools will have statistically significant higher test scores. (Please see performance measures in evaluation section.)

We believe that there is evidence of promise that students who attend the project magnet schools that serve participating students will have statistically higher test scores than similar (i.e., carefully matched) students who attend non-magnet schools in the same districts. The schools in Bifulco et al., have similar characteristics and serve similar populations to the Districts 25 and 30 schools proposed in this application. The intervention, presenting students with a high quality magnet curriculum capable of attracting students from different racial and ethnic backgrounds, and allowing students who attend or would attend non-magnet schools to apply and enroll, is the same. The study supports the logic model component Quality Magnet Curriculum and Instruction and the Outcome higher test scores as determined by a quasi-experimental study of ELA, mathematics and science test scores.

The Notice Inviting Applications stated that up to two research studies can be identified for review for the purpose of meeting this priority. Therefore, we offer a **second citation.**

Citation: Saxe, G. B., Gearhart, M., & Nasir, N. S. (2001). Enhancing students' understanding of mathematics: A study of three contrasting approaches to professional support. Journal of Mathematics Teacher Education, 4(1), 55–79.

Rating: Meets WWC group design standards without reservations Reviewed using: WWC Procedures and Standards Handbook. Reviewed in Practice Guide: Developing Effective Fractions Instruction for Kindergarten Through 8th Grade (Released September 2010)

Citation Outcomes: 1) The outcomes in the study presented and how those outcomes are statistically significant. This study is one of 9 that Yoon, et. al., identified as evidence of the importance of professional development dosage and structure. As described below, 8 of the studies followed-up intensive workshops with in-school support for classroom teachers.

Saxe, et. al., compared the effects of three types of professional development on the teaching of two elementary school units on fractions. An intensive model (IMA) that included content, instructional methods, information about student learning and assessment was compared with professional learning communities (PLCs) (called the SUPP group in the study) and teachers using "traditional methods" (defined as using textbooks and called the TRAD group in the study) who received no professional development other than brief training from the district. Student learning related to fractions was measured with instruments created for the study testing conceptual understanding and computation of fractions. (Prior to the study, teachers received two hours of professional development on how to teach the fractions units by the Los Angeles Unified School District and had already taught these units.)

The study found that the students of IMA teachers did better (statistically significant) on students' conceptual understanding of fractions than students of teachers in the other groups. The effect size was 2.39 based on data on page 68 of Saxe, et al., 2001 confirmed on page 10 of Yoon, et al., 2007.

2) How the outcomes in the evidence relate to the outcomes in your project:

An Institute of Education Sciences (IES), U.S. Department of Education funded research review (Yoon, et al., 2007; Yoon, Duncan, Lee, & Shapley 2008) identified nine studies (after examining more than 1,300) on the effect of teacher professional development on student achievement that met the What Works Clearinghouse evidence standards. An analysis of these studies found that "teachers who receive substantial professional development—an average of 49 hours in the nine studies—can boost their students' achievement by 21 percentile points." The studies that had 30 hours or more of professional development showed a positive and significant effect on student achievement from professional development. All nine studies focused on elementary schools and included workshops or summer institutes. Eight included follow-up sessions supporting the main professional development event illustrating the importance of follow-up activities after workshops. Even though the content of the professional development varied, the effect sizes were about the same: 0.51 for science, 0.57 for mathematics, and 0.53 for reading and ELA. Each of the studies links intensive professional development with improved classroom teaching resulting in higher student achievement as does this project.

Saxe, et. al., was chosen because the study made clear that one of its purposes was to contribute to the professional development literature. "The present study was designed to provide bottom-line evidence of the influence of professional development programs on student learning." Fractions were chosen as the topic because of its importance in the elementary school

math curriculum and the difficulties it has for students and teachers. The researchers were interested in the type of professional development that will enable greater student learning gains.

For the IMA group, there was a 5 day summer institute (approximately 35 hours) followed by 13 meetings held approximately every 2 weeks and one full day Saturday meeting (total of approximately 60 hours). The SUPP group met 9 times during the year for approximately 20 hours (estimate). The TRAD group had no professional development other than the one-shot 2 hour session provided by the district. We believe that the superior results achieved by the IMA students indicates that a professional development program that has a structure similar to IMA, shows evidence of promise. Having one-shot workshops, like the TRAD group, or one shot-workshops and PLC meetings will not be as effective as intensive and sustained professional development including job-embedded professional development support.

Relevance to the Proposed Project: This research supports the professional development activity of the logic model and the long term outcomes of increased student test scores in mathematics because professional development in these areas will be structured like IMA.

Saxe, et. al., highlights essential characteristics of professional development (PD) that should be present to have a positive impact on classroom instruction and ultimately, student achievement. The structure of the PD for this project will include workshops with follow-up in-school coaching—by PD partners and magnet resource teachers—and teacher collaboration (intervisitations, PLCs, discussions during peer review of units). As with IMA, the focus will be on teacher knowledge of content, student learning and instructional methods.

In addition, in the WWC practice guide *Developing Effective Fractions Instruction for Kindergarten Through 8th Grade*, the Saxe study is cited several times in support of its professional development recommendations. Therefore, for teachers at PS 201, a school with low

mathematics achievement, where only 36.3% of students reached proficiency on the 2015 state math assessment, a professional development program, with content and a structure similar to IMA will be developed by a team consisting of the school's dedicated math coach and math specialists from the Queens Borough Field Support Center. The team will develop a professional development program for PS 201 with the goal of improving the teaching of fractions and improving student skills in this area. This professional development program will have intensity (number of hours), content and structure as close as is possible and practical to IMA. IMA was implemented in Los Angeles a school district that is similar to New York City demographically. Therefore, the population for Saxe, et al., is similar to the population for this project.

The professional development proposed for this program focused on fractions will be also be consistent with the recommendation 5 of the practice guide: Professional development programs should place a high priority on improving teachers' understanding of fractions and of how to teach them by: a) building teachers' depth of understanding of fractions and computational procedures involving fractions; b) preparing teachers to use varied pictorial and concrete representations of fractions and fraction operations; and c) developing teachers' ability to assess students' understandings and misunderstandings of fractions.

Saxe, et al., provides evidence of the influence of professional development and curriculum on grades 4 and 5 students' understandings of the concepts and computation of fractions. PS 201 is an elementary school with students in grades PreK - 5. Thus, the school includes the same grades as the population in the study.

A quasi-experimental design that meets the What Works Clearinghouse evidence standard will be used to examine test scores of grades 3 through 8 students in the Districts 25 and 30 magnet schools, including PS 201. The study will be performed by the CRESST Center. Dr.

Joan Herman will be the principal investigator and Dr. Jia Wang will be the co-principal investigator and project director. The UCLA team has many years experience conducting similar studies of magnet schools (e.g., CREC-Hartford, Los Angeles), charter schools (e.g., Green Dot) and studies that were used in i3 validation and scale up grants (e.g., Literacy Design Collaborative). The evaluation questions for this study are: (1) How did students attending the magnet schools participating in this grant perform on state tests in relation to matched students at non-magnet comparison schools in Districts 25 and 30? (2) How did different subgroups attending these magnet schools perform in relation to matched students at non-magnet comparison schools in Districts 25 and 30?

As part of the study performed by the CRESST Center, they will also examine how students in grades 4 and 5 at PS 201 whose teachers receive the professional development discussed in the Saxe study perform on state tests in math in relation to matched students at non-magnet schools in Districts 25 and 30.

Yoon et al., points out that in the nine studies, including Saxe, et al., that the researchers look to see if the reform that is the focus of the professional development is being implemented in the classroom; in other words, looking at the extent of the fidelity of implementation of the reform in classrooms. We cannot duplicate Saxe's research, but rather this project will be informed by it not only regarding the structure, dosage and content of professional development but also in terms of expecting and monitoring high fidelity of implementation for classroom curriculum and instruction (the implemented curriculum) when compared with the intended curriculum (the curriculum and instruction that is the focus of professional development).

Invitational Priority: Socioeconomic Integration

The Districts 25 and 30 magnet project has been designed to improve MSAP outcomes related to minority group isolation and academic achievement by implementing an interdistrict plan with complementary strategies to increase the socioeconomic integration of schools in an effort to reduce minority group isolation in the project magnet schools. Project schools are minority group isolated, with much larger representations of Hispanic or Black students compared enrollments as a whole in their respective districts. The schools also have much larger proportions of poor students compared to the levels of poverty in their respective districts. In the project schools, minority group isolation and socioeconomic isolation are linked. Low income, or students in poverty, is defined as students with families who have qualified for free or reduced priced lunch or are eligible for Human Resources Administration (HRA) benefits. The low income category also includes students who are enrolled in a Universal Meal School where students automatically qualify.

Districts 25 and 30 determined that both reducing racial and socioeconomic isolation in the four proposed magnet schools need to be addressed together. There are performance measure targets for each school to both reduce minority group isolation and to reduce socioeconomic isolation. (Please see the *Quality of Project Evaluation* section for specific performance measures for each project school.) As was discussed in *Priority 1 – Need for Assistance*, there are schools in District 25 from which the proposed magnet schools can draw that are much more racially and socioeconomically diverse than the four proposed magnet schools. For the schools in District 30 especially, the only way students can have an educational experience in a more racially and socioeconomically diverse environment is if students can cross district lines. This was the impetus

for Districts 25 and 30 to develop this interdistrict project. A significant former barrier – the barrier for students in Districts 25 to enroll in District 30 schools and for students in District 30 to enroll in District 25 schools – will be eliminated.

(a) **Desegregation** (1) **The effectiveness of its plan to recruit students from different social, economic, ethnic, and racial backgrounds into the magnet schools.**

The recruitment plan for the Districts 25/30 Consortium is designed to disseminate magnet school information to all parents from **every racial and ethnic group** and assist parents to make appropriate choices for their children. Further, **each recruitment plan will include activities for focused recruitment for the target nonminority groups in the communities in which the feeder (sending) schools are located --Whitestone and Bay Terrace**. The recruitment plan has extensive district and school-level activities. All recruitment activities will be planned, directed, and coordinated by the magnet director, the community outreach specialist and, at the school level, the magnet resource specialists and each school's parent coordinator. The recruitment effort is a critical part of the magnet schools process. The districts expect that the plan will stimulate interest in the larger community that will result in the reduction of minority group and socioeconomic isolation in the magnet schools.

The relationships that the district has forged among parents, educators, administrators and the community are key to the success of the recruitment process. The Districts 25/30 recruitment team will have overall responsibility for planning, directing, and coordinating recruitment activities at the district and school levels. The team will consist of the magnet director, the community outreach specialist and, at no cost to the project, the districts' family advocates. The team will coordinate district and school level recruitment activities. Working closely with each school's

stakeholders, the recruitment team will create print and online applications, brochures, and guidebooks, and work with each school to develop a brand and design a logo. Recruitment team members will build a magnet website for the district to assist parents and students in selecting magnet schools. The magnet director and community outreach specialist will work with the NYC DOE's Translation and Interpretation Unit to translate all materials into the languages that are spoken by the parents in the districts, at no cost to the project. Recruitment activities will be supported, at no cost to the project, by other district and NYC DOE staff (e.g., staff from the Division of Family and Community Engagement and the Office of Informational Technology).

The school-based recruitment team will consist of the principal, the schools' parent coordinators, and the magnet resource teachers, guided by the school's School Leadership Team (SLT). The team will act as recruitment coordinators for their magnet schools. Each school's SLT includes the principal, teachers and other school staff, and parents. Parents from every racial and ethnic group play important roles on this team. Also critical to the recruitment process is the Parent-Teacher Association at each school, which will actively recruit parents for the magnet schools program. Further, the district and school recruitment teams will use the resources of the districts' parent advocates and the districts' parent newsletters and bulletins (electronic and print versions) to inform parents of all school activities and other recruitment events.

Each school will develop its own Facebook page, which staff will update regularly. It might contain, for instance, a list of upcoming events or the podcast of videotaped workshops on school choices, including magnet schools, which will be held at the recruitment center and at rotating libraries in different parts of the district. Twitter will be especially useful for sending out short program updates. School and magnet teachers and school-based administrators, magnet

resource teachers, and classroom teachers will be encouraged to promote their magnet schools by creating a LinkedIn profile of professional information about them.

Each project year, project-wide and school-specific recruitment plans will be developed and implemented. Each plan will include clear timelines, staffing responsibilities, description of the type of activity/strategy, and target neighborhood, feeder schools, or parent sub-groups. The districts and school level recruitment teams will develop strategic plans that will consider such factors as an event's date and timing in relation to the school calendar, the available resources, and the lead time needed to develop materials, do effective publicity/outreach, and otherwise organize an event. Each school's recruitment plan will be coordinated with district level activities. These plans will be reviewed weekly and modified, when necessary, during the recruitment and application period. They will also be reviewed at the end of each year.

Ongoing opportunities for input and feedback from all stakeholders will be built into the recruitment plans. Every six months, magnet and school staff will engage in an analysis of the recruitment strategy in terms of its strengths, weaknesses, and opportunities. Magnet and school staff will develop recruitment strategies only after carefully analyzing what would be most effective with different demographic and cultural groups and soliciting input from all stakeholders—parents, students, and staff. They will post online and begin to use a logo, recruitment video, brochure, or other marketing materials and activities only after getting feedback from a heterogeneous group of parents and other stakeholders. Districts 25 and 30 recruitment team members will, for example, develop online and print feedback forms, translated into multiple languages, to solicit this feedback. They will also create an online parent-response form, so that, as magnet staff and school personnel learn about parent insights and concerns, they can enter this infor-

mation, which magnet and school staff can then use to fine-tune recruitment strategies and make them more responsive to the families of prospective students.

In addition, parent focus groups will explore not only the magnet programs to be offered, but also parents' feelings about sending their children to schools in District 25 and 30, the comparable values of public and private schools, including the costs, and other issues. Focus groups will play a valuable role: both providing feedback throughout the project that will strengthen all recruitment strategies and making clear to parents even before they enroll their child that the magnet schools welcome their ideas and involvement.

The magnet director will work with the evaluator to ensure that recruitment strategies enable the program to meet its benchmarks and performance measures. The evaluator will work with the magnet director, the community outreach specialist and each school recruitment team to examine the successes of the magnet schools in reducing minority group and socioeconomic isolation and suggest areas for improvement, including the success of the district's and schools' recruitment plans. Schools that do not reach their recruitment goals and desegregation objectives will, with the assistance of the magnet director and community outreach specialist, either modify the plan or develop a new one.

Districts 25 and 30 will have a one stop drop-in recruitment center that will be easily accessible to all parents by public transportation. It will house the community outreach specialist, computers, and written materials in multiple languages about each magnet school. The center will have hard copies of all online recruitment materials, including an application form, magnet school booklets, brochures describing the magnet program at each school, and a list of common questions and answers about the magnet program and how to apply. Parents will learn at the

center how to access the project website at home, at a public library, or elsewhere, where they can share it with other family members, including children.

The community outreach specialist will be supported by the districts' parent advocates and/or school parent coordinators. They will assist parents individually and in small groups in selecting a school and completing and returning the application in a timely fashion. The community outreach specialist will keep individual records of parent contacts and follow-up visits with letters, emails, and telephone calls. The community outreach specialist will make appointments for parents to visit magnet schools and meet with the magnet staff. Magnet staff will give presentations both at the recruitment center and at community meetings. When necessary, translators will be available to make these presentations accessible to participants who speak languages other than English and all relevant materials will be translated into the native languages appropriate for those utilizing the recruitment center.

The community outreach specialist and project director will provide training for all school staff - administrative, pedagogical, secretarial, custodial, and others, that will enable them to describe the magnet program in a clear, compelling, and common way to parents, students, and other community members. Training for magnet resource teachers, administrators, and each school-based recruitment team will also enable them to train others in their school to develop a magnet school brand and a recruitment/marketing strategy. Training sessions will also prepare staff and parents to respond to the questions that parents of prospective students are likely to ask at open houses and school tours: questions, for example, about school safety, visiting the schools, the commute, contacting staff, special needs, afterschool programs, magnet themes and courses, and college and career preparation. To assist them in the recruitment process, staff

and parent leaders in each magnet school will have access to the various documents and PowerPoint presentations available on the project website and described below.

The District 25 and District 30 magnet websites will be invaluable as a student recruitment tool. Magnet staff and district and school personnel will determine whether to make it part of or separate from the districts' websites. Links on the homepage will take parents to an overview of each magnet school, information on how to apply on-line, frequently asked questions, magnet brochures for each school, and announcements of open houses and other upcoming events. The website might include a virtual school tour that enables a person to watch theme-based classroom activities, or see the student work posted in the hallways. Staff, as well as parent leaders, will have their recruitment efforts supported by websites that will include, for example, information on district and school recruitment plans, branding and logo development, open house and school tour flyers, tour agendas and evaluation forms, advertisement and other banners, magnet brochures, and enrollment data. (Magnet and school staff will, for images used on the website or for any other recruitment purpose, get parents to sign releases for their children.) The magnet websites will also have top-level links from the NYC DOE's homepage.

The districts will develop mailing lists for their target groups. They will update their lists on a regular basis. After the magnet program begins, the magnet office will send periodic mailings to its prime target groups. Magnet staff will place on public radio stations and local TV news stations public service announcements (PSAs) that contain information about the magnet schools and upcoming open houses and other such events. The community outreach specialist will arrange for educators and administrators from the magnet schools to be interviewed on local radio and TV talk shows and for students to be interviewed, discussing their school and its magnet themes, on those stations that specifically target school-age children, especially on public ac-

cess television channels. Television will be used to create an image, develop awareness, and direct the target groups to the applications when the sign-ups start. By combining a news and public information strategy with carefully timed paid media advertising and promotional materials, the district can stretch the project budget. Magnet staff will also send event announcements and press releases to the city's major newspapers (e.g., *New York Times*, *New York Post*, *Daily News*), the borough's community newspapers (e.g., *The Courier*, and newspapers published in Spanish (e.g., *El Diario/La Prensa*), Chinese (*The World Journal*) and other languages represented in the districts. These smaller newspapers maintain wide circulation locally and are closer to the "heartbeat" of the local community than the larger papers.

Magnet staff will establish and strengthen links between magnet elementary school staff, teachers, and principals with local nursery, Head Start, and day care directors and staff. An Early Educators Fair will provide those working with pre-school children with information about the magnet elementary schools. Magnet staff will also include both pre-school educators and parent coordinators in email blasts about project events and school selection and application information, as well as regularly email them each school's newsletter. The community outreach specialist will also work with the schools to develop student ambassadors who, under the supervision of the community outreach specialist, go into the pre-schools and work with children on projects. This helps build strong relationships with the schools, while at the same time involving magnet students in community service.

Magnet school fairs are powerful tools both to create initial interest and to provide the impetus for parents and students to visit schools that interest them. These fairs will have three-dimensional brochures, displays and posters and image-rich student work that describe the programs with words and pictures and model the themes and educational objectives of the various

magnet schools, as well as present DVDs of each magnet school. Teachers, administrators, parents and students will be available to serve as ambassadors for the school: providing information, sharing experiences, and engaging in dialogue with parents and prospective students. Each school's table will also have flyers listing its open house dates; a prominent sign or banner that contains both the school name and its brightly colored logo; and a PowerPoint that runs in a loop with information about the school and pictures of fun, challenging student activities. Extensive use of multimedia and video presentations at these fairs will emphasize the centrality of technology to each school.

Upon entering, parents will be asked to fill out a brief form, asking name, street and email addresses, home and cell phone numbers, and potential fields of interest, so as to facilitate follow-up email, snail mail, and phone calls. The fairs will also include specifics about the curricula and subject area content. Equally important will be the illustration in displays of potential career directions that students can take following their education in a project magnet school.

Open houses and school tours will be critical for getting parents and prospective students into the school. Both will require advance planning to increase the likelihood that those attending will get the kind of impression that will lead them to apply—and perhaps to spread the good word to friends and neighbors. Deciding on the primary message, as well as the length of the open house, will help determine which of the possible activities and events will be part of it: for instance, to provide a group tour of the building and facilities; to highlight magnet-related student work with a short performance, a presentation, or an exhibit; and to offer information about the magnet school through a brief film, a PowerPoint presentation, or a question and answer session with the principal, teachers, and students. An open house is also a good time to solicit feedback from parents on recruitment materials and their impressions of the schools. At open houses,

school tours, individual school-choice counseling sessions, and other recruitment activities, magnet and school staff will request email addresses from those parents who have them and cell phone numbers from those who text. Magnet staff will follow up with personalized emails responding to questions posed by parents who agreed to such use of their email address. They will also send parents email blasts (along with U.S. mail) about upcoming events, new school selection information, and application deadlines to parents. Magnet staff will also email each school's electronic, multi-color, and clearly branded newsletter to parents in the midst of the choice and application process and to libraries and faith-based and community-based groups.

The school-based recruitment team, in consultation with the magnet director and community outreach specialist, will decide questions related to school tours, such as the role of the tour guide, the route, the things to highlight, the students to talk with visitors, and the script, if one will be used. Because school tours can be tailored to the needs of a small group of parents, they can meet multiple needs, including those with very restricted schedules or those whose native language is shared by relatively few local residents.

A major advantage that Districts 25 and 30 have even before the recruitment process begins are their strong links to various and diverse organizations throughout the community and the city. As an example, the districts have developed a partnership with the New York Institute of Technology to provide, at no cost to the project, architects to design new interior and exterior designs and conduct the structural renovations at the magnet schools to support the designs, e.g, exterior art; landscaping; new entries, student areas, faculty areas, and common areas. The districts will also reach out to community based organizations to "get out the word." The community outreach specialist will give presentations at outside agencies, such as *Inside Schools*, a group that has a site for parents detailing public school options in their communities, to present infor-

mation on the magnet schools. The community outreach specialist will also develop a data base of real estate agencies and sponsor special events for agents to learn about the schools in District 25 and 30. The community outreach specialist will contact local utilities, e.g., Con Edison and Verizon, to see if marketing/recruitment materials can be included in their mailings.

All public libraries in the Districts 25 and 30 communities will have hard copies of the resource materials found at the recruitment center. The community outreach specialist will educate the public library staff so that they will be more familiar with the magnet school program. Library staff will refer interested parents to the recruitment center and show them how to access, using library computers, the project website, with its wide range of recruitment information. To enhance its image and prestige in the community, the magnet effort will include outstanding community leaders, as well as respected sports and media personalities, in community events, printed materials and public service announcements.Many of the parents in the community have strong ties to their respective religious communities. The churches, mosques and synagogues in the neighborhood are frequently a focal point for family activities and parental interaction. These religious institutions and other faith-based organizations will be used as critical meeting places where parents receive brochures and hand-outs and join together to discuss in focus groups the proposed magnet schools. In addition, the proposed magnet schools will build on their existing relationships with community-based organizations such as: Queens Community House, Korean Community Services, UJA Federation, New York Irish Center, Filipino American Human Services, Women for Afghan Women, Minority Business Development Center, and Center for Women of NY. The connections with these organizations and others will ensure that the needs of students and families are met at each of the proposed magnet schools.

(a) (2) The extent to which the applicant demonstrates how it will foster interaction among students of different social, economic, ethnic, and racial backgrounds into the magnet schools.

The Districts 25/30 Interdistrict Consortium magnet desegregation plan will expand choice options to students in each district and provide a pool of students of different social, economic, ethnic and racial backgrounds to reduce minority group and socioeconomic isolation in the four proposed minority group isolated and socioeconomically isolated magnet schools. The proposed magnet schools are attendance zone schools that are located in poor neighborhoods that, for the most part, drive the enrollments of the schools. There are other neighborhoods in the Interdistrict Consortium that have larger proportions of wealthier, nonminority residents. As discussed in prior sections, the only way that many of the poor, minority students will have an opportunity to attend more racially and socioeconomically diverse schools is if students can cross school district lines. The proposed Interdistrict Magnet Program will provide those opportunities. The proposed project is an outgrowth of the recognition by stakeholders in Districts 25 and 30, as well as NYC and the New York State stakeholders, that there is an urgent need to address the racial and socioeconomic inequities in New York City schools. Now is the time that an MSAP project can have its greatest impact.

However, attracting a diverse student population is not enough. **The project will promote desegregation within the project schools by using proven strategies and instructional techniques to ensure that students from different social, economic, ethnic, and racial backgrounds have ongoing opportunities to interact with one another in classroom activities, after school programs and other magnet program activities.** The primary vehicles to be

used to foster substantive relationships among students from varied backgrounds will be *heterogeneous grouping, cooperative learning, and multicultural education/culturally responsive teaching*.

Heterogeneous Grouping: Districts 25 and 30 are committed to heterogeneous grouping in their magnet schools. Every class will have students from different social, economic, ethnic and racial backgrounds, as well as all ability levels. This will eliminate any vestiges of ability tracking and inflexible grouping practices to maximize the opportunities for students to appreciate their differences and value their similarities. The classes will include general education students, English language learners, special education students (as detailed in their IEPs), and children with physical disabilities, from different ethnic backgrounds and all performance levels on New York State standardized tests. The use of technology in magnet school classrooms will enable teachers to effectively manage and students to benefit from heterogeneous grouping. Technology that is integrated into instruction will help leverage differentiated learning. The multisensory approach of a Smartboard lesson, for instance, which integrates video and audioclips, along with interactive components that allow students to answer questions remotely or with a touch screen, might be effective with a wider range of students than a lesson that depends solely on auditory or visual learning. Students can use the Internet to see the connections between a theme-based lesson and its "real-world" relevance and application.

Cooperative Learning: Cooperative learning is a successful strategy to foster interactions among students of different racial, ethnic, and economic backgrounds and to improve student achievement. In cooperative learning, small teams, each consisting of students with different ability levels, engage in learning activities designed to improve their understanding and skills. Cooperative learning strategies have been extensively researched and have been shown to

improve student achievement for a wide variety of subjects for grades kindergarten through high school, when properly implemented. It has been used to promote reading and writing achievement, conceptual understanding in science problem solving in mathematics and higher-order thinking and learning (Roseth, Johnson, & Johnson, 2008; Slavin, 2011, 2014; Gillies, R.,2014).

In stressing a 21st-century skill like collaboration, the creators of the Common Core standards were responding to the increasing recognition that the ability to work cooperatively is essential preparation for many types of work. The ELA standards include as key features "speaking and listening: flexible communication and collaboration. The Common Core is explicit about the ways in which a standard such as “construct viable arguments and critique the reasoning of others" can be met through cooperative learning groups--in which "students in all grades can listen or read the arguments of others, decide whether they make sense, and ask useful questions to clarify or improve the arguments" (Standards for Mathematical Practice, #3).

At all four magnet schools, instruction will be inquiry-based, with students working together to “solve” open-ended questions and design solutions to them. Collaborative projects, an important part of the curriculum, will teach students valuable skills, such as teamwork and communication, within a STEM context. In addition, as will be described in the next section, both science and math units will include STEM projects for students to work on collaboratively that will be developed collaboratively by classroom teachers, magnet resource teachers and professional development partners.

Roseth, Slavin, and Gillies, point out that successful cooperative learning approaches incorporate five key strategies: formation of diverse interdependent teams; setting group goals; insuring individual accountability; teaching students communication and problem-solving skills; and integrating cooperative learning with other structures throughout the school day. Small

group work will be a major part of the school day for all students. This project's professional development will help teachers understand the best approaches for cooperative learning and how to implement them in their classrooms.

Multicultural Education and Culturally Responsive Teaching: James A. Banks, the foremost scholar in multicultural education, has described five dimensions of multicultural education and culturally responsive teaching that will be the foundation of this project. The dimensions are: (1) content integration; (2) the knowledge construction process; (3) prejudice reduction; (4) equity pedagogy; and (5) an empowering school culture and structure. Content integration deals with the extent to which teachers use examples from a variety of cultures and groups to illustrate concepts, principles, generalizations, and theories in their subject area or discipline. The knowledge construction process relates to the extent to which teachers help students to understand, investigate, and determine how the implicit cultural assumptions, frames of reference, perspectives, and biases within a discipline influence the ways in which knowledge is contracted within it. In the prejudice reduction dimension, teachers help students develop more positive attitudes toward different racial and ethnic groups. An equity pedagogy exists when teachers modify their teaching in ways that will facilitate the academic achievement of students from diverse racial, cultural, gender, and social-class groups. This includes using a variety of teaching styles and approaches that are consistent with the wide range of learning styles from various cultural and ethnic groups. Finally, the last dimension is a school culture and social structure that promotes gender, racial, and social-class equality. To implement this dimension, the culture and organization of the school must be structured in a collaborative process that involves all members of the school staff (Banks, 2016). These dimensions have been embraced by staff, students and families in the proposed magnet schools. They will be embedded in the magnet program cur-

ricula, units and lessons and all magnet professional development guiding all interactions between and among participants.

Further, supporting all of the dimensions, the NYC DOE produces an annual Diversity and Inclusion Plan. The *2014-205 Diversity and Inclusion Annual Report* highlights various initiatives to increase culturally responsive teaching among staff including the Division of Teaching and Learning monthly trainings on *Inclusive Culture-Building*; *Everybody Matters,* an interactive training focused on defining diversity, building awareness of individual differences, and creating inclusive work environments; *Missing Link: Targeting Help for New York City's Highest Poverty Schools;* and the *Coaching for Equity Institute.* Teachers will receive additional training in *Culturally Responsive Systems and Culturally Competent Educators* and *English language Learner Education* from The Education Alliance at Brown University. Dr. Maria Pacheco, Executive Director of the Education Alliance at Brown University, will provide the training. Dr. Pacheco is a noted expert in cultural competency and serving English Language Learners.

(a) (3) How the applicant will ensure equal access and treatment for eligible project participants who have been traditionally underrepresented in courses of activities offered as part of the magnet schools, e.g., women and girls in mathematics, science, or technology courses, and disabled students.

Access to a high quality education is a compelling need for the entire student population at the proposed magnet schools. The magnet project has been designed to provide choices for all students – general education and special education, English language learners and children with disabilities – and improve the quality of teaching and learning at all of the magnet schools. It

will call on parents to participate fully as partners in the program who are knowledgeable about the improvement goals for their schools as well as the educational goals for their own children.

To ensure equal access and treatment for project participants who have traditionally been underrepresented in courses or activities offered as part of the magnet school, Districts 25 and 30 will ensure that women and girls will have equal access to STEM courses and activities, and ELLs and special education students, including students with disabilities, also have equal access to magnet activities through a program that incorporates: learning opportunities for women and girls in mathematics, science, or technology courses; authentic inclusion of special education students, including students with disabilities, into all magnet activities; authentic inclusion of English Language Learners into all magnet activities; activities and environments that support greater multicultural understanding and respect; and increased access to technology for poor and minority children.

Providing Equity for All Students. **Districts 25 and 30 will use technology as a tool for teaching and learning that will support student learning in all core academic subjects and access to a challenging and engaging education. The District 25/30 Consortium's focus on technology innovation is based on a commitment to the National Technology Standards for Students, Teachers and Administrators (NETS) endorsed by the International Society for Technology in Education (ISTE)**. This approach rests on a shared vision for educational technology that involves students, teachers, parents and the community. (Please see the Project Design section for a more detailed description of the innovative technology strategies that will be implemented in the magnet schools.) This model may just be the next game-changer when it comes to improving student achievement across the board by providing multiple ways to engage students.

Regardless of each school's selected magnet theme, the magnet project will transform the school's use of technology in innovative ways that, by facilitating both student engagement and differentiated learning, will foster educational equity for all students. While each school's principal and School Leadership Team will determine how best to use technology with staff and students, each will build on what the Model Technology Schools have learned so far. The 10 themes that have emerged from a diverse group of **NYC Model Technology Schools** are as follows**:** student engagement through digital content; motivation and accountability through public nature of work; focus on literacy; Internet literacy; data-driven instruction; student-centric classrooms; multimodal learning; project/problem-based learning; collaboration; student empowerment; and students as tech support.

With the technological frameworks in place, Districts 25 and 30 will provide varied opportunities for **all** students to meet the Common Core and State standards. Equitable access to high quality instruction; exemplary multicultural materials to support and celebrate the diversity in each magnet school; research-based materials to ensure standards-level performance in all content areas, including STEM; intensive, focused professional development to improve the quality of teaching and learning in every magnet classroom; and newly reinvigorated staffs challenged by the promise of the magnet program will ensure that all students learn at high levels in ideal environments.

Equal Access and Treatment for Girls and Women in Math, Science, or Technology Courses: In order to ensure equal access for girls in all magnet activities, the project will incorporate gender equity issues into professional development activities that focus on content, curriculum development and pedagogy across the curriculum, including science, technology, engineering, and math (STEM), subject areas in which girls have been traditionally underrepresented. Signifi-

cant progress has been made in this area, as evidenced by the fact that female students took over half of the STEM-related Advanced Placement exams in NYC in the 2013-2014 school year and that almost two-thirds of all finalists in the 2015 NYC Science and Engineering Fair were girls (Agish, 2015). This important work will be sustained and expanded upon in the proposed magnet schools.

As part of its larger gender equity focus, each magnet school will support in multiple ways girls' access to and success in challenging STEM activities. For example, schools will pay particular attention, beginning with the recruitment process, to making their programs attractive to, welcoming of, and engaging to girls. Girls' attitudes toward STEM as class subject, as a potential area of personal or extended-day exploration, and as a future career are influenced by, among other things, the existence—or absence—of female role models who teach and enjoy STEM, have high STEM-related expectations for female students, and/or who have made a career in one or more STEM disciplines. In order to promote greater self-efficacy in girls regarding their own science abilities, schools must provide a curriculum based in a strong conceptual framework incorporating real-world problems, as well as teachers who promote girls' scientific abilities (Baker, 2013). Subject-based magnet professional development that improves the comfort with and ability to teach STEM of the primarily female teachers at the elementary grades will support girls in developing positive attitudes toward these subjects.

In addition, all magnet school instructional staff and administrators, as well as parents and other family members, and members of the School Leadership Team, will have the opportunity to participate in gender-equity events that city, district and magnet staff will sponsor at the magnet sites. These include discussions related to research that has been conducted by: (1) Girls Incorporated (formerly Girls Clubs); (2) The Girl Scout Research Institute; and organizations of

women scientists and engineers, such as the Association for Women in Mathematics and the National Research Council's Committee on Women in Science, Engineering, and Medicine.

Equal Access and Treatment for Students with Disabilities: Students with physical and learning disabilities will be included in all magnet activities. Beginning in the 2012-2013 school year, the NYC DOE began implementing its Special Education Reform initiative, titled *A Shared Path to Success,* (NYC DOE, n.d.) a set of policy changes intended to: "to close the achievement gap between students with disabilities and their peers without disabilities; to provide increased access to and participation in the general education curriculum; and to empower all schools to have greater curricular, instructional, and scheduling flexibility to meet the diverse needs of students with disabilities." (Black, 2011). The implementation of a comprehensive *Response to Intervention* system provides screening methods to identify student needs and the use of the *Universal Design for Learning* framework aids teachers in developing curricula to meet the instructional requirements of each learner. Accommodations, modifications, and integrated support services (e.g., physical therapy, speech therapy, counseling) will also be provided to students with disabilities as defined in student's Individual Education Plans.

The magnet schools will provide students identified as having learning disabilities with mandated services, while differentiating instruction to help them achieve at the same level as peers without disabilities. Teachers will develop flexible curriculum goals, materials, methods, and assessments that meet the needs of diverse learners, particularly those with disabilities. All magnet schools will provide the supports and services (e.g., accommodations, assistive technology devices) that will enable them to meet the challenge "to excel within the general education curriculum based on the Common Core Standards" (McNulty & Gloeckler, 2011, p. 4).

Equal Access and Treatment for Minority Students in Mathematics, Science, and

Technology: Magnet funding will help the project schools improve STEM instruction and learning in ways that support the equal access and treatment of minority students in STEM. All magnet schools will, for instance, strengthen teachers' ability to "ramp up" the rigor of math and science instruction as they align the Common Core standards with NYC's math curricula, *Go Math!* (elementary schools) and *CMP3* (middle schools). Furthermore, in June 2015, NYC released a revised scope and sequence for elementary science education aligned to the Common Core and Next Generation Science Standards, as well as the Excellence in Environmental Education guidelines. Local partners will work to support the development of resources to implement the revised curriculum to ensure access for all students (NYC DOE, 2015b).

Professional development in which equity issues are integral will support teachers in approaching STEM in the classroom and in other settings in ways that recognize and value the cultural heritage of their minority students, see the connections in their lives and those of community members to STEM, and develop greater confidence in their ability to be successful in learning about STEM. Magnet teachers will use culturally-relevant instructional strategies, as well as such other effective classroom strategies with students from non-dominant racial and ethnic social groups as multimodal experiences, activities that are community-related, and role models and mentors of the same racial or ethnic background (Next, 2013). Strategies to be used include hands-on learning that focuses on inquiry, involves students in doing experiments and using manipulatives, links STEM with other subject areas, and provides opportunities to engage in STEM activities in extended-day and other informal settings. As discussed below, the project will ensure the access to STEM of ELLs, who in Districts 25 and 30 are almost entirely minorities. (Please see *Priority 4 – Promoting STEM* for an extended discussion of project STEM activities.)

Equal Access and Treatment for English Language Learners: English Language

Learners and their families are a valuable resource to be tapped to enrich District 25's and 30's programs, especially the magnet program. A 2014 Memorandum of Understanding serves to re-affirm a shared commitment to these students by the NYS Department of Education and New York City Schools, setting guidelines for key areas, including identification and placement, programs and services, parent information, staffing, and accountability (Farina & Black, 2014).

All ELLs have equal access and opportunity to participate in high quality educational programs. The native language arts program parallels the English language program, holding all students to the same high literacy standards. The same is true of instruction across the curriculum. Teachers will continue to be equipped to use best practices in transitional bilingual, dual language, and ENL methodologies to ensure that ELLs are held to and reach rigorous standards. Teachers of ELLs, like all of their colleagues, have made the pedagogical shifts required by the Common Core standards. The magnet schools will draw on the resource materials available, including with *Understanding Language*, the Stanford national initiative designed to improve ELLs' access to Common Core standards. NYC participated in the first Common Core-aligned unit of study, in conjunction with *Understanding Language*, and has benefitted from the adoption of The Key Principals for ELL Adoption, intended to aid educators in developing coursework to support students in the attainment of Common Core and NGSS.

The integration of science, for example, with "language accelerates the development of academic English, allows English learners to have equitable access to content area curriculum, and supports culturally and linguistically inclusive classrooms" (Carr, Sexton, & Lagunoff, 2007; Brown & DiRanna, 2012). Magnet staff will also draw on the effective strategies that support both language learning and science content, developed by the Next Generation Science Standards (NGSS) Diversity and Equity Group, including highlighting activities for literacy develop-

ment, providing language support strategies, facilitating ELLs participation in classroom discourse, making use of students' home language, and engaging in culturally-based communication (Next, 2014). The magnet resource teachers will introduce staff to materials that help them become more *culturally responsive* and sensitive to the needs of ELLs. Teachers will learn to adapt their approaches to instruction and parent involvement to ensure the participation of traditionally underrepresented students and families.

(a)(4) The extent to which the applicant demonstrates the effectiveness of all other desegregation strategies proposed by the applicant for the elimination, reduction, or prevention of minority group isolation in elementary and secondary schools with substantial proportions of minority students.

Districts 25 and 30 have formed an Interdistrict Consortium that will enable students in both districts to cross district lines to attend more diverse schools. In many cases, students in both districts are "trapped" within their school district boundaries when there are schools in another district that they could attend. The Community School Districts 25 and 30 Superintendents developed the interdistrict plan for this proposed magnet program that will open the district boundaries so that four highly minority group isolated and socioeconomically isolated magnet schools –PS 92, IS 145, PS/MS 200 and PS 201, can have a chance to attract a larger pool of nonminority, middle class children both within the district (for District 25 magnet schools) and across district lines (for magnet schools in District 30) and where **all children can have more choices.**

Selecting the proposed magnet schools, as well as their programs, came about as a result of discussions and meetings with all stakeholders in the Districts 25 and 30 communities, facili-

tated by New York City Department of Education (NYC DOE) personnel. NYC DOE staff at all levels, including New York City Chancellor Carmen Farina, provided input on city-wide desegregation initiatives, the city's focus on opening up choice initiatives for all students, and the communities most in need. It was immediately recognized that strategies were sorely needed to provide more choices for students in District 25 and 30, and that for students in District 30, an interdistrict program was the only way to accomplish this goal. The new Mayor and Chancellor have initiated several pilot desegregation programs and sensitized communities to the strong need for change and new desegregation strategies. The Superintendents of Districts 25 and 30 responded. Both Superintendents recognized the same need and saw an interdistrict magnet program as a solution to entrenched minority group and socioeconomic isolation in their communities.

The Superintendents of Districts 25 and 30 met with principals in their districts and together established the schools that were most in need and, just as importantly, were ready; that is to say, schools that had strong leadership, had leadership and staff open to new challenges related to changing demographics in their schools, schools ready to completely revamp their educational programs, and schools where parents in both communities felt their children would be safe in supportive educational environments. A list of potential schools was completed and consensus was reached by the Superintendents and the principals for the magnet school project configuration of schools – PS 92, IS 145, PS/MS 200, and PS 201. The principals of the proposed magnet schools then went back to their schools to work on selection of each school's theme. The schools conducted informal surveys and consulted with all school stakeholders, i.e., school staff, the School Leadership Teams, representatives from the schools' parent groups, union representa-

tives, and community partners, to select themes and design thematic programs to support the desegregative purpose of the grant.

(b)(1) Quality of the project design: The manner and the extent to which the magnet school program will improve student academic achievement for all students attending each magnet school program, including the manner and extent to which each magnet school will increase student academic achievement in the instructional area or areas offered by the school.

The design of the Districts 25 and 30 Consortium magnet project is based on a magnet model that has been carefully crafted by the two districts to promote racial and socioeconomic desegregation and improve students' academic achievement. As demonstrated in the *Priority 1 – Need for Assistance* section of this proposal, the proposed magnet schools are struggling academically. In order to be successful schools and successful magnet schools, they need to do nothing less than transform themselves to become high achieving schools. As will be discussed in this section, there are significant NYC supports in place that are expected to improve teaching and learning, e.g., the city's new *Framework for Great Schools* and the *Framework for STEM Education*. And this will be the case in many of the city's schools. However, the proposed schools need more intensive supports central to the magnet program than the NYC Department of Education (NYC DOE) can provide – extensive school based professional development and curriculum development for teachers and enhanced afterschool and summer programs for students, and renewed parent and community engagement.

The New York City school system, the largest school system in the country, consists of over 1,500 schools. As demonstrated in the Needs section, the city's resources are limited. Although there are resources to support students at the schools (e.g., supports for English Language Learners, disabled students, and students who are struggling academically), most of the teacher training for school improvement consists of workshops and institutes and takes place at New York City central or borough locations that currently affects relatively small numbers of the city's over 50,000 teachers. (The training is supplemented by on-line city-wide curriculum libraries of exemplary units and other on-line platforms for sharing best practices). Similarly, there are city-wide after school and summer programs for students, again, currently affecting a limited number of the city's over one million students. It is expected that these teacher training and student programs will be expanded over the years, but the proposed schools need extensive support now. To truly transform the proposed magnet schools hard work needs to be done at the school level. The magnet program at each school will provide extensive resources for the development of a rigorous, magnet theme as well as a solid core curriculum. The two are inextricably linked and will be addressed together. This cannot happen without extensive professional development for teachers and an extensive curriculum development initiative at the school level which will be provided by the project.

The **Theory of Action** is: (1) If all teachers, in each school, receive 50 hours each year of high quality Professional Development focused on Improvement of Core Subject Curricula and Instruction, and 50 hours each year on the Development of a Magnet Theme and its Integration into those curricula, then teachers will develop and implement Quality Magnet Curriculum and Instruction (a special curriculum capable of attracting substantial numbers of students of differ-

ent racial and socioeconomic backgrounds). (2) If Quality Magnet Curriculum and Instruction is taught to students and becomes the core of the school's instructional program, and that is widely known by students and their families, then a large, diverse group of students will apply to a magnet school and minority group and socioeconomic isolation will be reduced. (3) If a magnet school's students are exposed to Quality Magnet Curriculum and Instruction for 10 hours per week (project year 3 performance measure target), they will then attain higher levels of achievement than carefully matched students who do not attend a magnet school.

The project logic model, based on the theory of action, is presented in section *(b)(4)*. School level project models are included as an appendix. Project Logic model activities include: (1) improved curriculum and instruction and student academic support; (2) magnet theme integration; (3) professional development; (4) parent involvement planning; and (5) desegregation (student recruitment, application process and selection of students).

School Districts 25 and 30 Magnet Model – Based on Solid Research

Magnet School Research: Dr. Dale Ballou (2007) cites studies--Crain, Heebner and Sim 1992, 1999; Ballou, 2007--that indicate that magnet schools improve student academic achievement supporting the logic model output Quality Magnet Curricula and Instruction. (Ballou examined fourteen studies and found only four that met high design quality criteria. Of those four, the two cited above have statistically significant positive results.) Prominent studies since then (e.g., Bifulco, Cobb & Bell, 2009; Betts, 2015) yielded similar results—positive in one study and no effect in the other. (The Bifulco, Cobb & Bell study is cited in *Competitive Preference Priority 5* as evidence of promise for this project.)An important question is why significant positive results are not found more consistently. A recent, meta-analysis of five MSAP evaluations by the CRESST Center at UCLA, suggests a factor that the literature has not adequately

explored for magnet schools—fidelity of implementation. CRESST concluded that the variations in student achievement among MSAP project schools were due to the degree of fidelity of implementation which included magnet theme implementation (e.g., curriculum and professional development dosage, quality and reach and resource use), support of classroom teachers (e.g., time with coaches supporting grant activities) and professional development utility. Students attending schools with high degrees of fidelity of implementation of the magnet program and teacher support had significantly higher test scores than similar students attending nonmagnet schools in their districts. Each of the five evaluation studies met the What Works Clearinghouse evidence standards for quasi-experimental studies. (However, these individual studies were not published by their school districts.)

The findings from the above research and other research on professional development (please see section *(b)(3))* are **evidence of the project's strong theory** and drive the project's the logic model. Presented below are detailed descriptions of the logic model activities.

Improved Curriculum and Instruction and Student Academic Support

Curriculum and Instruction: Districts 25 and 30 designed this comprehensive magnet program based on a system of school improvement, based on solid research, that is being rolled out by the New York City Department of Education (NYC DOE). The magnet program at each school will provide extensive resources for the development of rigorous, magnet theme related curricula based on new NYC initiatives designed to change instruction in New York City.

Framework for Great Schools. The Chancellor's *Framework for Great Schools*, (Farina, 2015a) is the blueprint for teaching and learning and school improvement. The *Framework's* ideas about and approach to education are solidly founded in current research and widely and publicly supported by regional and national experts from the academy, the union, and politics

(NYC DOE, 2015a). The cumulative research of the Consortium on Chicago School Research on school improvement informs the NYC DOE and this magnet schools project. Particularly salient is the seminal reports and follow-up book that includes the concept of the "Five Essential Supports" (Bryk, Camburn, & Louis, 1999; Bryk & Schneider, 2004; Bryk, Sebring, Allensworth, Luppescu, & Easton, 2010) for improving academic progress: (1) Leadership, (2) Parent-Community Ties, (3) Professional Capacity, (4) Student Centered Learning, and (5) Ambitious Instruction) are mirrored by New York City's "Six Essential Capacities" (Farina, 2015a) giving structure to the NYC DOE's *Framework*. These elements are: (1) Effective School Leadership, (2) Strong Family-Community Ties, (3) Collaborative Teachers, (4) Supportive Environment, (5) Rigorous Instruction, and (6) Trust.

The NYC DOE goal is to move teachers from the traditional, isolated, single-disciplinary approach to a transdisciplinary model, where disciplinary content areas are aligned, integrated, and applied to real-world learning – an approach that is an integral part of the proposed magnet project's logic model for improved curriculum and instruction.

*Curriculum and the Common Core***.** Having adopted the CCSS in 2010, the New York State Education Department (NYS ED) achieved full implementation in grades K-8 in the 2013-2014 school year. The NYS DOE promotes effective use of the CCSS through a detail oriented designated online platform for teachers called *EngageNY* (NYS ED, n.d.) which provides curricula and pedagogy. It articulates mandated instructional shifts in a clear and concise set of flow-charted priorities.

In mathematics, these shifts cross all grade levels and are: focus, coherence, fluency, deep understanding, application, and dual intensity; while in English Language Arts they are:

balancing information and literary texts in PK-5, knowledge in the disciplines in 6-12, text-based answers, writing from sources, a staircase of complexity, and an academic vocabulary. The NYC DOE has worked to provide understanding by disseminating this information through the Common Core Library (NYC DOE, 2016a). This library includes tasks and units for all grade levels, as well as associated annotated student work in both English/language arts and mathematics, in addition to science and history/social studies.

*Framework for STEM Education***.** Alongside the *Framework for Great Schools'* (NYC DOE, 2016b) strategic orientation of six capacities for promoting and developing academic progress that are at the heart of this magnet project, the NYC DOE's reform initiatives also include a second framework, the new *Framework for STEM Education* (Benn, 2015) which aligns with the *Framework for Great Schools* and CCSS. The STEM framework has discrete indicators of success within four domains: (1) *School Vision and Structures for Success* -- articulates a coherent STEM vision; (2) *Curriculum, Instruction, and Assessment* – encourages a transdisciplinary approach to curriculum and instruction that promotes student-centered inquiry, problem-based learning, and teacher collaboration; (3) *Strategic Partnerships* – engages community based organization (CBOs) higher education institutions, businesses, and other external partners who offer STEM education programs; and (4) *College and Career Readiness* – prepares students for STEM post-secondary education and careers by providing equitable access to all students and provides STEM educational experiences. The criteria under each indicator describe the conditions necessary to maximize the domain's potential.

The STEM framework calls on classroom teachers to take up the charge found in *Rising Above the Gathering Storm* (Committee, 2007) and the *National Action Plan for Addressing the Critical Needs of the US STEM Education System* (National Science, 2007). These two reports

recommended: (1) increasing the investment in STEM programs, (2) enhancing the STEM teaching force, and (3) enhancing the pool of students pursuing degrees and careers in STEM fields. These recommendations have been continuously echoed since that time in nationwide policy reports (Carnegie, 2009; National Conference, 2010; National Science, 2010; Gonalez & Kuenzi, 2012; Joint, 2012; White House, 2013; United, 2014; Committee, 2013; America, 2007, 2010) and have resulted in the *5-Year Strategic Plan* (Committee, 2013) and the STEM Education Act of 2015.

Central to the NYC DOE's *Framework for Great Schools* and *Framework for STEM Education* is the promotion of a an "authentic pedagogy" (Newmann, 1996, 2000; Newman, Lopez, & Bryk, 1998; Lee, Smith, & Croninger,1995; Newmann, Bryk, & Nagaoka, 2001; Rule, 2006). Authentic learning in STEM requires students to seek and communicate deeper understanding of prior knowledge to solve problems in which the cognitively challenging, academically rigorous curricular content is integrated into real-world applications emphasizing a process of disciplined inquiry that requires students to problem solve in STEM-aligned assessments with meaningful partnerships in the community. As such it will enhance the academic experience of students with a variety of learning experiences (Benn, 2015). This approach will prepare students for college, for specialized work, and for civic engagement (Newmann, 1996; Cohen, McLaughlin, & Talbert, 1993; McLaughlin & Shepard, 1995; Porter, 1994; Stevenson & Stigler, 1992).

*STEM Across the Curriculum***.** NYC DOE has benefitted from New York State's participation as one of the 26 Lead State Partners in the Next Generation Science Standards (Next NY, n.d.) development process. As a lead state partner, New York was involved in vetting the standards. Although at this time New York State has not adopted the NGSS, in anticipation

of the state's adoption or a state version of it, NYC DOE developed an enhanced version of its *Science Scope and Sequence* (NYC DOE, 2015b) that is aligned to the *NGSS Science and Engineering Practices and the Cross-Cutting Concepts.*

Based on NGSS, in addition to the traditional disciplinary domains—the physical sciences, life sciences, earth and space sciences—the NYC Science Scope and Sequence also contains practices in science and engineering. This addition is a significant departure from prior standards. In concert with the CCSS, the ELA and Mathematics Standards, which are infusing more authentic reading, writing and mathematics into science classrooms, the implementation of the NYC enhanced version of the Science Scope and Sequence signals an important move toward STEM education in New York City schools.

NYC's STEM Education efforts are further advanced by the *Statewide Strategic Plan for Scienc*e (NYS ED, 2015). This plan includes six critical components: (1) Standards, (2) Curriculum, (3) Professional Development to Enhance Instruction, (4) Assessment, (5) Materials and Resource Support, and (6) Administrative and Community Support-- each of which is further defined by a single focused goal. Objectives intended to operationalize these goals are unpacked into discrete activities to drive progress within each of the critical components. Ultimately, the plan seeks to move the state, including the NYC DOE, toward its vision to ensure the teaching and learning of science for all P-12 students by providing equitable access to exemplary teachers, science curriculum programming, instructional practices, and standards-based assessments that are reflective of research and best practices, along with quality resources and support from stakeholders at large (NYS ED, 2015). Please see *Priority 4 - Promoting STEM* for a detailed discussion of STEM activities that will take place in the magnet schools.

Technology**.** Technology is woven into the fabric of each of the proposed magnet schools across the curriculum. District 25's and District 30's technology activities are based on the NYC DOE's *Strategic Technology Plan* which articulates the process of enacting the NYC DOE's commitment "to ensuring that our students and staff have access to the technology tools, services, and skills that will play an ever-more crucial role in their success" (NYC DOE, 2015-2020). Of its strategic priorities, goals, and key initiatives, the *Plan* begins by asserting the goal for STEM education: "Increase access to science, technology, engineering, math, (STEM) and computer science education for every New York City public school student" (NYC DOE, 2015-2020). The plan includes strategies to integrate technology into instruction and outlines initiatives to invest in infrastructure and devices, and focus on the user.

All of the project's technological goals are situated within conditions to support digital-age schooling and afford an integrated orientation for faculty and students which will enhance achievement. The combination of NYC DOE's aligned frameworks with the resources and support to actualize them provided by the magnet program (e.g., ongoing professional learning, student-centered learning, assessment and evaluation, engaged communities) will enable the schools to fully leverage technology for learning and integrate it in the standards-based core curriculum, which will be the foundation of all magnet instruction.

Supporting the city's technology plan, the NYC DOE's Office of Innovation established the "iZone" (NYC DOE, n.d.b) to: (1) Work with schools to design and test new learning model; (2) Work with the edTech market community to get tech into the hands of teachers and students; and (3) Work within the NYC DOE to build capacity for innovation and remove barriers that inhibit promising new models. (NYC DOE n.d.b). This project is dedicated to supporting school

communities in building personalized learning environments to accelerate college and career readiness for students through the use of technology.

This work includes an annual Blended Learning Institute, which engages teachers in a four-phase process incorporating both online and face-to-face meetings to promote the use of technology and blended learning strategies. Furthermore, an annual School Technology Summit, presented in conjunction with the Center for Digital Education, provides teachers, administrators, and support staff the opportunity to engage in current best practices in the use of technology to support student learning.

***Student Academic Support*:** The curriculum and instruction initiatives require student academic supports so that all students can succeed. A comprehensive system of supports, described below, will be provided to all students in the magnet schools.

Universal Design for Learning. The adoption of the CAST *Universal Design for Learning* (UDL) Framework in New York City schools, which includes a structure for educators to plan and develop instruction to meet the diverse needs of all students, provides a consistent platform through which all teachers can meaningfully apply the new standards (National Center, 2012). UDL is a scientifically valid framework for guiding educational practice that is based on research in neuroscience, cognitive psychology, and the learning sciences. The framework: (1) provides flexibility in the ways information is presented, in the ways students respond or demonstrate knowledge and skills, and in the ways students are engaged; and (2) reduces barriers in instruction, provides appropriate accommodations, supports, and challenges, and maintains high achievement expectations for all students, including students with disabilities and students who are English Language Learners. UDL begins with a philosophy that all students are capable of learning. In application, there are three levels of teaching and learning in the UDL framework:

(1) Representation is the first step of the scaffold in which skills and content are presented in multiple ways. (2) Expression is the second phase of learning in which students are provided multiple ways the demonstration of their knowledge can be assessed in both formative and summative manners. (3) Engagement can occur in this third phase as students equipped with knowledge and understanding experience their world with new knowledge engaging in shared authentic experiences. As stated by the US Department of Education, research replicating findings is its basis, and "In virtually every research report on instruction or intervention, individual differences are not only evident in the results; they are prominent" (National Center, 2012).

Personalized Learning. Magnet thematic instruction will incorporate the innovative approaches that characterize the NYC DOE's iZone schools and reflect a project-wide commitment to engaging, rigorous, and individualized, personalized learning that meets each student's needs, motivations, and strengths, while increasing student achievement and college and career readiness. iZone schools achieve personalization in a variety of ways driven by the ideas, technologies and tools that work best for each learner, in each classroom within the community. These include: (1) real-time information to support each student through an innovative Personalized Learning System (PLS); (2) collaborative learning and cultural exchange opportunities; (3) digital resources that supplement a teacher's instruction; and (4) more time for teachers to plan lessons alone and with fellow teachers. One aspect of this personalized approach will be the integration into each classroom of multiple instructional "modes"—live teacher-led sessions, software-based lessons, collaborative activities, virtual tutors, and individual practice.

Drawing on the iZone's School of One initiative, students will have the opportunity to learn in the way(s) that work best for them—online, independently, one-on-one with a coach, in

collaborative small groups, or, for older students, in non-school settings through internships, apprenticeships, field work, or early college courses. Through this process, teachers will be provided with real-time data on student learning and will adjust individual instruction accordingly. Students will move on to new content when they are ready and have demonstrated mastery of the current material. In this way, magnet schools will move toward a personalized, student-centric school model in which flexible curriculum, assessments, technology, staff, and space respond to each student's needs and strengths.

Meeting the Needs of Struggling Students. Districts 25 and 30 are committed to the pursuit of quality instruction and knows that it involves detecting, preventing, and supporting students before they fall behind. Central to the magnet project of increasing academic achievement for all students is a strong, collaborative strand of Professional Community--that between the Academic Intervention Services (AIS) and the Inquiry Team--that coordinates intervention practices. The foundation is the State mandated Response to Intervention (RtI) process. This process enacts the concrete and robust recommendations vetted by the What Works Clearinghouse (especially those with moderate and strong levels of evidence) and recommended in their *Practice* Guides (Gersten, et al., 2009a, 2009b) which deeply inform the schools' daily practice and the magnet PD program – particularly in math and English lessons.

Given that the AIS and Inquiry Team is comprised of school-based personnel, support activities are customized to each school's population. Students who are identified to be at a greater risk of not meeting promotional criteria receive greater intensity of academic support services. Examples of AIS services include: iReady for reading and math support, Reading Recovery, Fundations, AIM Reading Intervention, and the Rewards Writing Program. Students in

need also receive interventions in the affective domains that impact academic achievement, such as wellness, counseling, attendance, mediation, conflict resolution, and health counseling.

In both mathematics and English language arts, therefore, teachers: screen every student, monitor progress, and instruct daily and systematically. These processes are in place to also inform work with other students who may have specific needs.

Meeting the Needs of Special Education Students. The magnet schools are inclusion schools. There are 655 special education students among the total 3,254 students (20.1%) at the magnet schools who will participate fully in the magnet programs. The NYS ED Committee on Special Education asserts that it is the "fundamental right of students with disabilities to not only be taught the same content (the general education curriculum) as other students, but also to be provided appropriate supports and services based on their individual needs so that they can gain knowledge and skills in what is being taught and demonstrate what they have learned" (NYS ED, 2014). NYC DOE shares this belief and has fully implemented its special education reform initiative articulated in the NYC DOE's *Family Guide to Special Education Services for School-Aged Children: A Shared Path to Success*. The document explains the policy changes intended to ensure that students with disabilities: (1) have access to a rigorous academic curriculum and are held to high academic standards, enabling them to fully realize their potential and graduate prepared for independent living, college, and careers; (2) are taught in the "least restrictive environment" that is academically appropriate, and, as often as possible, alongside students without disabilities; (3) receive special education services that are targeted and provide the appropriate level of support throughout the school day; and (4) are able to attend their zoned schools or the school of their choice, while still receiving the supports they need to succeed." (NYC DOE, n.d.a).

An independent objective review of the reform effort, conducted by Perry and Associates and the Fund for Public Education, has concluded that implementation to date has led to teachers holding high academic standards for both students with and without documented disabilities, an increase in planning and collaboration to differentiate instruction to ensure that the needs of all students are met, and improved student learning resulting from the use of technology to collect data, monitor student progress, and communicate with families (Perry & Associates, 2013; 2014).

In accordance with these reforms, the proposed magnet schools will provide students identified as having learning disabilities with mandated services in the least restrictive environment, differentiating instruction through the *Universal Design for Learning* framework to help them achieve at the same level as their peers without disabilities. Teachers will develop flexible goals, materials, methods, and assessments that meet the needs of diverse learners, including those with disabilities. All magnet schools will provide the accommodations, modifications, and supplementary aids and services (e.g., assistive technology devices) mandated by each student's IEP to enable them "to excel within the general education curriculum based on the Common Core Standards" (McNulty & Gloeckler, 2011, p. 4).

Magnet program resources, as well as those provided by New York City's Office of Special Education Services and New York State's Office of Vocational and Educational Services for Individuals with Disabilities (VESID), will enable each magnet school to provide instruction that has been shown to be effective with children of different abilities in all content areas. The Citywide Council on Special Education, an elected group of volunteer parents whose children are served by Individualized Education Programs, will provide advocacy for students with

disabilities while continuing to advise NYC DOE on instructional policies across the district, including in the proposed magnet schools.

Meeting the Needs of English Language Learners. The NYC DOE meets the needs of ELLs in a four concrete ways: (1) Milady Baez, a seasoned NYC educator experienced with leading dual language and bilingual programs, has been appointed to a new, cabinet-level position reporting directly to Chancellor Farina and leads the important work in the newly formed Office of English Language Learners and Student Support (OELLSS). (2) NYC DOE has issued the third in a series of handbooks intended to support English Language Learners (ELLs) *Language Allocation Guidelines: The LAP Handbook for ELL Programs*, (NYC DOE, 2013a). This handbook draws from federal, state, and local laws and regulations from the last forty years to ensure access and equity for all ELLs in the NYC DOE as well as from WWC recommendations regarding "Teaching Academic Content and Literacy to English Learners in Elementary and Middle School" (WWC, 2014). (3) NYC DOE has developed a *Language Allocation Policy Tool Kit*, (NYC DOE, 2013b) released concurrently with the handbook, which helps educators operationalize the guidelines in creating coherent and consistent programs for ELLs throughout the school system. (4) Finally, there is the "Memorandum of Understanding" (Farina & Black, 2014) -- a joint publication between the City and State Departments of Education--which reaffirms the commitment to ELLs, articulates key priorities of identification and placement, explicates programs, services, and parent information and faculty accountability.

To support these city wide initiatives, the magnet schools' faculty and staff envision a Professional Community in which a commitment to meeting the needs of all students, including ELLs is a pillar. To achieve this end, they will ensure that students are placed appropriately in general education, transitional bilingual, dual language, ENL classes, or some combination

wherein ELLs will work with their peers in heterogeneous groups and classes, engaging in cooperative learning projects that tap their strengths and support their development.

In order to provide appropriate supports in each of these settings, the Department of English Language Learners and Student Support has provided a comprehensive resource library, available to all teachers, that includes videos, academic units, and research on best practices to support teachers in providing meaningful instruction to English Language Learners.

***Magnet Theme Integration*.** Magnet teachers are tasked with the difficult job of integrating multiple frameworks, paradigms, and principles advanced by excellent educational research and school reform initiatives. To manage this task teachers will work within the curriculum design methodology, *Understanding by Design* (UDL), developed and produced by Wiggins and McTighe (2005) and advanced by the Association for Supervision and Curriculum Development (McTighe & Wiggins, 2012).

Central to all curriculum development and instruction in the magnet schools will be **Project Based Learning.** Project Based Learning is a teaching method in which students gain knowledge and skills by working for an extended period of time to investigate and respond to an engaging and complex question, problem, or challenge. Essential Project Design Elements include**:** Key Knowledge, Understanding, and Success Skills - The project is focused on student learning goals, including standards-based content and skills such as critical thinking/problem solving, collaboration, and self-management; Challenging Problem or Question - The project is framed by a meaningful problem to solve or a question to answer, at the appropriate level of challenge**;** Sustained Inquiry - Students engage in a rigorous, extended process of asking questions, finding resources, and applying information; Authenticity - The project features real-world context, tasks and tools, quality standards, or impact – or speaks to students' personal

concerns, interests, and issues in their lives**;** Student Voice & Choice - Students make some decisions about the project, including how they work and what they create; Reflection - Students and teachers reflect on learning, the effectiveness of their inquiry and project activities, the quality of student work, obstacles and how to overcome them; Critique & Revision - Students give, receive, and use feedback to improve their process and products; and Public Product - Students make their project work public by explaining, displaying and/or presenting it to people beyond the classroom.To manage the magnet theme integration task, teachers will receive PBL training from the **Buck Institute** and project partners will use PBL as the foundation for their work with the schools.

Using a unit plan template based on Buck Institute's Project Overview Template or a unit template customized by Rubicon Atlas, teachers will create themed, inquiry-based, technology-rich PBL units of study that address the diverse learning needs of all students to meet the CCSS and achieve academically by beginning with the end in mind. Essential questions frame this so-called backward design methodology, questions that drive the assessment driven planning which is then worked backward to define daily learning experiences.

Guided by each school's magnet resource teachers, and supported by the project's STEM/curriculum planner and project partners, teachers will lead the work of developing comprehensive magnet units. The Magnet Curriculum Design Committee will determine essential questions and then write curriculum maps for all disciplines students encounter. These units will infuse the magnet theme into the respective standards of each content area so that students will be exposed to both rigorous academic instruction and will have the opportunity to apply their learning in a real-world context. School and magnet staff will edit these units, using an established protocol within professional learning communities, which will then be posted on

the district's magnet website so that teachers in each of the magnet schools, as well as parents, can readily access them. In this way, technology functions to facilitate the design of the curricula and the transparency of it through sharing with families and community partners.

Using this method of purposeful planning within the backward design framework represents best practices in curriculum design, is advanced by the NYC DOE and will enable teachers to create themed, inquiry-based content-rich PBL units of study with transparent and meaningful assessment practices, that address the instructional needs of all students and meet the rigorous demands of the CCSS.

Finally, PD modules will be developed in order to support teachers in the creation of lesson plans for each content area. In this way, the school's themed curriculum writing initiative will be sustained not only through the academic years but after the life of the grant as teachers are guided annually through the process of writing and refining lesson plans aligned to thematic units. It is expected that each project year, the design teams will implement themed units of study that are peer reviewed and that will result in students receiving magnet theme instruction for at least 3 (year 1), 6 (year 2) and 10 (year 3) hours per week.

***Professional Development*.** Aligned with Bryk, et al., (2010), the NYC DOE's initiatives include a revision of the conception of PD to one of **Professional Learning – a key component of the magnet program's logic model.** "We must reimagine professional learning so we begin to understand it as the routine work of a highly engaged group of educators who come together to better their practice and, in the process, improve outcomes for students" (Robin, 2014, p. 3).

School Level Professional Learning**.** Research confirms that meaningful professional development within professional learning communities, combined with extensive coaching and mentoring, improves student achievement (Yoon, Duncan, Lee, Scarloss & Shapley, 2007). This

is a pillar of the magnet schools project. Teacher collaboration, promoting the acquisition of skills and expertise through opportunities to develop, grow, and learn from peers and experts are cornerstones of the project. In order to achieve strong student outcomes, "Teachers must be committed to student success and driven to improve their schools. Strong teachers innovate and hone their practice through continuous learning and frequent professional development" (NYC DOE, 2016b). Magnet school instructional staff will build on NYC resources available to all teachers, and will include specific experiences related to the implementation of the magnet theme, including STEM infused instruction. The project's rigorous magnet PD program, using the *Great Schools Framework* as a blueprint, will provide site-based and job-embedded professionalizing support to develop and implement the magnet theme. Please see section *(b)(3)* for a detailed description of the project's professional development activities.

Parent Activities: Please see the parent program narrative in each magnet school's theme school description for discussions of the schools' parent involvement planning.

Desegregation: Student Recruitment, Application and Selection Activities Please see the section *Desegregation…The effectiveness of its plan to recruit students from different social, economic, ethnic and racial backgrounds into the magnet schools* for a detailed discussion of the recruitment process. Please see Table 5 for a discussion of the application and student selection process.

The following are descriptions of each magnet school's theme.

PS 92: Engineering, Architecture and the Arts Magnet School

In conjunction with partners from New York Hall of Science, the Salvadori Center, and the New York Historical Society, PS 92 will provide its students with a rigorous, comprehensive education grounded in engineering, architecture and the arts with an inquiry-based, hands-on,

transdisciplinary instructional approach. Using pbskids.org's Building Big and Design Squad, as an example, teachers will serve as facilitators and co-learners guiding students to explore, explain and seek resolutions to meaningful problems. Students will identify relevant, real-world issues, design possible solutions and test and evaluate the resulting theories. Learners will become critical, innovative thinkers who are digitally literate and prepared to meet the demands of the 21st century STEM labor force. Through the creation of hands-on, standards-based Project-Based Learning (PBL) units of study that teach core content through a filter of engineering, architecture and fine arts, students will apply their learning to real-world projects that benefit the school and the community.

For example, as 2nd graders learn about "Urban, Suburban and Rural Communities," as part of *NYC 's Social Studies Scope and Sequence,* students will research the arts and architecture of rural and suburban localities using the Internet and library while taking walking tours of the neighborhood to examine urban life. Responding to the essential question: "How do we shape our environment?," students will construct an argument supported by evidence that addresses how we shape our environment and/or are shaped by our environment. Through trips to the New York Historical Society, and reading Gail Gibbon's How a House is Built, factoring in CCLS **2.5:** *Geography and natural resources shape where and how urban, suburban, and rural communities develop and how they sustain themselves,* students will make inferences about urban home construction. Studying human habitats in urban, suburban and rural communities via Google Earth, students will respond to the design challenge to build a living space for a family in one of the three locations using AutoDesk to generate blueprints before constructing a prototype in the MakerSpace.

As a fine arts extension, students will create found object sculptures incorporating reusable objects found at home and recyclable materials found on architectural walking tours of their urban environment. Responding to the communication prompt "How has local development improved or harmed our community?," students will interview family members and their neighbors to create a group pictorial essay demonstrating how a local development has helped or harmed their community and invite local officials to class to discuss how they, as students, can get involved through a service learning project. Starting with *NYC Scope and Sequence* in all content areas, teachers will use backwards design to align CCLS and NYC initiatives to all themed PBL units. Transdisciplinary learning will include 21st century skills, digital literacy, civic engagement and the engineering design process across a multidisciplinary curriculum.

PS 92 will have a MakerSpace, a lab for making and doing. By providing the tools and materials for tinkering and taking stuff apart that students may not have access to at home, students will be able to apply the engineering design cycle process - ask, imagine, plan, create, improve- while critiquing and appreciating the relationship between form and function in products they design. Student learning will be improved by using the rigorous STEM content along with the skills of questioning, observing, seeing patterns, and constructing meaning in a social and creative DIY hub that extends beyond the school day. The BEAM Center , a collaborating architectural partner, and the New York Historical Society, a collaborating STEM partner, will support teachers in the MakerSpace to facilitate student art, architecture and engineering knowledge products.

STEM Connections: STEM skills and strategies will be embedded into all magnet theme PBL units and will drive all student research investigations. The school will collaborate with the Center for Architecture for student workshops at their facilities in Manhattan or in school resi-

dencies in which customized programs include multiple learning sessions with math and science topics like Architecture in Your Neighborhood, Green and Sustainable Architecture and Design/Build Studio, etc. Supporting the kindergarten study of their neighborhood, on a walking trip through the neighborhood, students will identify the shapes of windows on buildings using all six of the geometry learning standards (CCLS). At the Morgan Museum, architecture exhibits include "Off the Wall Math – Geometry and Architecture" in which students are exposed to how architects used geometry and patterns to design buildings in two different eras, 1900's and 2000's. Students will incorporate this information as background knowledge to design their own buildings at the Queens Museum where they will participate in the workshop City Blocks. Students will design cardboard buildings and become urban planners on multiple grade levels with increased rigor and relevance by creating city blocks with the buildings they create. As an example, back in the classroom, 2nd grade students will collaborate by combining their city blocks to create a mini city applying their measurement and data and geometry CCLS while 5th graders will apply the geometric measurement of understanding concepts of volume and relate volume to multiplication and to addition. At the SONY Wonder Lab, students will participate in "hands on" technology exhibits in animation, motion pictures and television. Back in the classroom, with help from their partners at the Salvadori Center, they will use this technology to document the creation of their mini city.

Collaborations/Partnerships: New York Institute of Technology (NYIT) will focus on developing and implementing Service Learning Projects, STEM residencies/after school enrichment programs, parent programs and recruitment activities. NYIT's faculty and students (undergrad and/or graduate) will work directly with magnet teachers and students to develop community development Service Learning projects that provide students with hands-on STEM experienc-

es and connect them with actual STEM professionals, mentors, STEM-major college students, nonprofit organizations, and businesses. NYIT will use students and resources from campus-based clubs and national societies to develop and implement STEM themed residencies, after school programs and enrichment activities. For example, students from the National Society of Black Engineers (NSBE) and the Society of Women Engineers (SWE) will conduct Little Bits and Lego robotics clubs, engineering classes, and sound design classes in the MakerSpace. Not only will this provide opportunities for students to receive STEM themed instruction, but it will allow them to interact with college students, and it will address issues such as the achievement gap and a lack of female representation in STEM fields by having students involved with organizations (such as NSBE and SWE) whose missions revolve around these issues. In addition, NYIT offers free undergrad and grad interns to magnet schools. Their students can provide IT/ Help Desk services to teachers and staff, help set up and network computers/iPads/Smart Boards and other digital devices, help trouble shoot equipment problems, maintain websites and online platforms, organize supplies, or assist with a multitude of other needs in the building. The school will collaborate with Big Idea Week, a group of entrepreneurial mentors from DUMBOstartups like facebook, MakerBot, Flocabulary and Etsy to light the imagination of students in grades 4 and 5 and inspire them to be the next generation of makers and doers. The program teaches students to see real-world problems as opportunities for innovation; supports development of 21st -century skills; creates important community connections; and instills responsibility in the tech sector.

Professional Development: All teachers will receive professional development in project based learning (PBL) through the Buck Institute**.** Working with professionals from NYIT, they will create exciting STEM units. NYIT will use their faculty and students to help magnet teach-

ers integrate STEM education into the themed PBL units they create through Buck Institute, as well as facilitate the implementation of these units. In other words, Buck Institute will teach teachers to write PBL units and NYIT will help teachers to add the STEM components and implement them. To support its magnet theme development of 21st century skills, teachers will collaborate with Big Idea Week entrepreneurial mentors to learn how to take those real-world art and architectural problems students have observed and move them into opportunities for innovative engineering design and packaging. Working with Center for Technology and School Change (CTSC), educators will develop engaging learning environments for students. Their model for innovating instruction is focused on three principles: Design -Engage teachers as designers of student-centered, authentic learning experiences; Situate-Champion professional learning that is embedded in the realities of teachers and schools; Lead -Support leaders in guiding and sustaining change initiatives, while positioning teachers as agents of change. In the area of technology integration, CTSC will provide in depth, ongoing PD and action research that engages teachers as designers of student-centered, authentic learning experiences that leverage digital tools to facilitate student inquiry (trainers will work with teachers and school leaders to use the technology they have in the building---or to purchase relevant new technology) -to create technology rich, student-centered, 21st century learning environments. The BEAM Center will provide PD for teachers on embedding architectural principles and the engineering design cycle process into core subjects. The Center will also provide PD in differentiating instruction for ELL and students with special needs.

Parent Program: NYIT will offer Financial Literacy classes to parents and community members to help them with fiscal planning, money management, utilizing public services, job seeking, etc. In addition, NSBE and SWE will help the school design and implement themed

family nights and other family events that promote family engagement, attract prospective parents, and help foster a STEM culture within the school. Parents will be invited into classrooms to assist with projects in their production phases. They will share their knowledge with students and see what their children are learning; classes will create exhibitions to showcase their projects and invite parents to view them on Tuesdays during Parent Time. On Family Project Nights, families will come together and be challenged in an engineering/architecture based project to complete as a family team. This might be as simple as making a pasta structure that can hold a marshmallow or going on a scavenger hunt to identify architectural aspects of PS 92. Teachers and the school's Parent Coordinator together will create workshops where parents learn about the specific core curriculum and STEM projects their children are working on in class and how to reinforce learning at home. They will share ideas for project extensions to do at home with their children while having an opportunity to brush up on their own skills and knowledge of these subjects.

IS 145: The Magnet School of Innovation and Applied Learning

IS 145 will provide a significantly revised magnet program for its students. The school became a magnet school in 1993 as the Magnet School of Telecommunications and Technology. The technology and instructional program that was developed has become outmoded over the course of the last 23 years. The school has updated its technology over the years, but the school's technology is now common to all New York City schools. The school, although still a magnet school, has lost its edge and effectiveness. IS 145's stakeholders and community representatives determined that the school needed to completely revamp its curriculum, as well as its technology, in order to fully realize its magnet vision – a school where students are engaged in authentic learning through applied learning principles. And the school's stakeholders determined that

focusing on Science, Technology, Engineering and Mathematics (STEM) was the best way to engage students. Each of IS 145's five student-selected academies—Science & Technology, Journalism & Media Arts, Law & Humanities, Math & Business, and International Studies—will be a hub for STEM exploration via multiple pathways. Magnet funding will support a school wide transition from interdisciplinary to transdisciplinary learning, teaching, and assessment. Grade 6-8 students' rich, real-life transdisciplinary learning experience will build on student-generated STEM questions that relate to each Academy focus, to core content and enrichment classes, and to outside school activities. Student-centered inquiry and project-based learning (PBL) that take a transdisciplinary approach will help students meet the Applied Learning Performance Standards, which relate to Problem Solving, Communication Tools and Techniques, Information Tools and Techniques, Learning and Self-Management Tools and Techniques; and Tools and Techniques for Working with Others.

STEM Connection: IS 145's PBL approach will orient students towards the real-world, creative problem-solving that is the heart of science and engineering and of a transdisciplinary approach. Students who pose the question, "How can we stop people from getting sick?" for instance, will study bacteria, viruses, epidemics, and disease prevention, do lab experiments, generate hypotheses, play an online disease simulation game, study public health issues, read non-fiction about the great flu epidemic of 1918, and write the text for a health-related PSA—one student-generated question leading to learning in multiple disciplines.

Seventh graders who ask about the impact and causes of climate change, for example, would learn about environmental cycles (science), key ideas and details, and the integration of knowledge and ideas, as they sort through and analyze primary and secondary sources, including charts and graphs, to identify patterns and judge the validity of different conclusions (language

arts, social studies, math). Student-produced multimedia presentations will use online content and sources in order to stage a mock global debate highlighting different perspectives. Students might culminate a project on climate change, for instance, by designing and building a miniature ecosystem in the engineering lab, producing a video documentary about deforestation, creating a digital interactive climate simulator, or researching and creating a restaurant menu using only sustainably sourced ingredients. Students will work in the classrooms, after-school, and in the reinvigorated school labs/MakerSpaces where they will work in teams to address the questions they have raised about climate change.

In addition to the academy labs/MakerSpaces, students will have access to an art studio, a computer lab, and in-class technology. In the art studios they can create claymation art, stop frame animation, and digital collage projects to support their STEM projects. Other unique spaces, one per academy, will include: a video studio, a music engineering studio, an engineering lab, a programming and multimedia lab, and a consumer science lab.

Collaborations/Partnerships: Current and new partnerships with a wide variety of institutions will provide learning experiences inside and outside the school that support students in generating and solving problems and preparing them for high school, college, and a career. The BEAM Center will bring to IS 145 its Exploratorium After-School Tinkering Program, which involves students in scientific and engineering practices, and its winter InventGenuity Festival. New York Institute of Technology (NYIT) minority and female college students will engage IS 145 students through after-school robotics clubs and engineering and sound design classes; and NYIT interns will provide IT/Help Desk services to teachers and staff. In the St. John's University's Gear Up program, students will take courses in robotics, creative arts, women and science, and more and to prepare for STEM college and career opportunities. IS 145 will use mathemat-

ics skills and principles of engineering design in the Soap Box Derby through Vaughn College, getting hands-on, real-world science and technology experience by constructing their car with a college intern, while applying relevant laws of physics. In the Model UN program, students will develop collaborative and communication skills and do in-depth online research on scientific and technical issues such as globalization, climate change, the loss of arable land, and zombie pandemics. The Museum of the Moving Image will offer IS 145 students after-school PBL courses in which they use science and math skills and video software to create animations and video games. Through the Center for Science Teaching & Learning, students will participate in the annual Nassau County Science Exhibition.

Professional Development: PD from three providers will support teachers in making the shift to co-planner/co-learner that is essential for transdisciplinary teaching. Onsite before and during the magnet program, the BEAM Center will help teachers support interest-driven learning in the classroom and incorporate Maker Movement concepts into the school culture. Columbia University Teacher's College Center for Technology will help teachers leverage digital tools to facilitate student inquiry and create a sustainable technology plan. NYIT will train teachers and students to develop and implement STEM-themed service learning projects for students and parents. IS 145 will also get school-specific PD: The Buck Institute for Education (BIE) will train all teachers in PBL through onsite workshops, an onsite PD consultant, and BIE institutes and conferences. *Project Lead the Way* will prepare teachers to integrate technology into their classroom through online and collaborative in-person programs on PBL, student and teacher roles in STEM instruction, and unit-specific STEM content, as well as through a national online learning community (National Gateway PLC) for STEM educators. The Columbia University Teacher's College Center for Technology and School Change (CTSC) Initiative for Meaningful Integration

of Technology (NYC-InTech) will prepare teachers to create student centered "authentic learning experiences" and support them to design and implement technology-infused, transdisciplinary projects. Through EdTech, teachers and administrators will have access to a full year of blended professional development on how to use iPads, Chromebooks, and Web 2.0 tools and apps. The Museum of the Moving Image will train teachers on the use of film, television, and video games in core content, ENL, and art classes. Through previous PD with Arts Assessment for Learning, IS 145 has in place teachers who can turnkey learning in some of the arts areas and in the use of assessment tools to train students in assessing, revising, and reflecting on their own work though PD; magnet PD will focus on STEM and transdisciplinary teaching and learning. Google will provide free PD to teach educators how to set up a Google Classroom and use Google for Educators to produce rigorous, standards-based PBL lessons, connect classrooms and teachers, and prepare students to be high school-, college- and career-ready by familiarizing them with the most current educational tools; Google-certified teachers will train other teachers. In addition, a partnership with Arts Connection will help teachers to integrate 21st century STEM art into the classroom. Arts Connection will provide PD and residencies in areas such as digital music, digital photography, animation and other multimedia arts applications. In collaboration with the Center for Educational Innovation and as part of a 25-school pilot program within the NYC Department of Education, IS 145 is currently implementing *The Leader in Me*, a whole school transformation process that teaches 21st-century leadership and life skills to students and creates a culture of student empowerment based on the idea that every child can be a leader. An IT / technology specialist will serve as a single point of contact for all teacher development and materials management.

Parent Program: Currently IS 145 supports family engagement in their child's STEM learning through parent-student community service projects; an annual Math Showcase and Social Studies and Science Fairs; and Gear Up, which helps parents learn to support their child's academic success and plan for college and careers. Magnet funding will expand parents' engagement with their child's STEM learning. There will be expanded STEM-themed family events, with NYIT's assistance in designing and implementing them. Parent-child teams will use the new MakerSpace to investigate questions related to public health, climate change, and other issues. Magnet staff will work with Learning Leaders to enhance the STEM component of the 3-day Learning Leaders training at IS 145 that certifies parents to be school volunteers. The planned expansion of the IS 145 website, which will include helpful links in multiple languages, including tutorials for homework help, will further engage in the website redesign parents, as well as for students who are taking computer programming and design classes. Magnet staff will encourage parents and students to become part of Citizen Scientist, observing and recording the habitats of urban animals. The school will provide translated materials about the magnet program for the school's largely Spanish-speaking parents.

PS/MS 200: The Magnet School of Global Studies & Leadership

Through an emphasis on international studies, cultural literacy, and STEM education, students at The Magnet School of Global Studies & Leadership will learn to be innovators and leaders in the complex, culturally diverse, and rapidly changing global community. Teachers will utilize innovative instructional methods, including Socratic Seminar, Project-Based Learning (PBL) and Inquiry-Based Learning, to guide students through hands-on experiences that emphasize global citizenship and are aligned to the Common Core State Standards, the

New York City Science and Social Studies Scope & Sequences and the STEM domains. Instruction will emphasize and build proficiency in the cornerstones of 21st Century Learning - creativity, communication, collaboration, and critical thinking - as students work together to research and debate worldwide events and issues before proposing, designing, and constructing targeted solutions. Students will use multimedia and computer technology as tools to gather, organize, analyze, and create digital content and as platforms to communicate with partners across the globe. Teachers will build upon student research on worldwide current events using Socratic Seminars in which students engage in rich, structured discussion, rooted in a shared reading, to solve open-ended questions. In the course of each Seminar, students will learn to effectively articulate their own thoughts and gain a better understanding of the value of active listening to build critical thinking skills and tackle complex issues. Explicit training on various types of debate, including extemporaneous, parliamentary, and Lincoln-Douglas, will help students gain confidence in their argumentative skills and the use of evidence to support claims. Teachers will work together, with the support of magnet staff, to create a vertically aligned PK-8 Magnet Scope & Sequence for Global Studies and Leadership that emphasizes transdisciplinary project-based units of study. Such units will revolve around an essential question and will require that students utilize both their unique background knowledge and the skills gained in disciplinary courses to apply their learning in a real-world context. In the elementary grades, units will build on Engineering is Elementary (EiE), a curriculum developed by the Boston Museum of Science, to expose students to stories about children around the world and present the opportunity for students to utilize engineering processes to solve global issues. For example, students in the third grade will examine the use of simple machines throughout history, as well as their applicability in the present day, utilizing the EiE unit *Marvelous Machines.* Focusing on the essential ques-

tion "How can we harness the power of simple machines to promote access to clean water around the world?", students will examine the ways that ancient civilizations transported water, utilizing *Google Earth* and *Chromebooks* to examine actual ruins of Roman baths and viaducts. Students will engage in a Socratic Seminar in which they use evidence to discuss the merits of various methods of moving water to build shared knowledge about effective tools and techniques. Utilizing the STEM lab, students will design water conveyance systems using pulleys and levers for use in Sub-Saharan Africa and will use Bricks 4 Kidz LEGO blocks to construct and test their prototypes.

In addition to transdisciplinary units, students in the middle school grades will also engage with the magnet theme through deep and sustained inquiry in quarterly discrete courses aligned to the Schoolwide Enrichment Model, including debate, forensics, economics, and botany. A student government, composed of elected student officials from all grades, will model democratic leadership and be a key voice in the development of student programming around the global students and leadership theme.

STEM Connection: The engineering design process will be utilized throughout thematic units as students identify global issues, brainstorm strategies, and construct and refine concrete solutions. The use of Engineering is Elementary in the elementary grades will encourage students to apply content knowledge and promote the use of engineering design strategies to address real-world problems. Students will utilize technology on a daily basis to conduct research and create multimedia artifacts that document and share their emerging knowledge, including personal blogs, computer simulated animation, and public service announcements. Through a partnership with Reach the World, an organization that connects classrooms to volunteer world travelers and students who are studying or exploring around the globe, magnet students will have the

opportunity to learn about foreign cultures and environments first hand through *Skype* and *FaceTime*. For example, as fifth graders learn about China, Egypt, and Australia in their NYC Scope and Sequence "Geography of the Eastern Hemisphere" unit, they will be able to communicate via videoconference with college students travelling abroad in those countries as a component of their inquiry research. A designated STEM Lab will provide students with the opportunity to collaboratively engage in complex problem-solving related to broad issues using a variety of tools and equipment including Bricks 4 Kidz LEGO kits that facilitate authentic, real-world modeling. Students will use the lab for projects aligned to thematic units as well as service learning projects that ask them to design products that will benefit the community or help solve global problems. During their study of diverse energy sources, eighth grade students might utilize the STEM Lab to propose alternatives to fossil fuels and to build and test prototypes utilizing sustainable energy sources. In conjunction with partners from the BEAM Center, these students will construct models that harness solar, wind, and water power, and then develop a pitch to promote its use in diverse regions across the globe to be shared during Big Idea Week. An associated service learning project will connect students to STEM professionals in order to construct solar panels for use in light fixtures on the school's campus. The engineering design process will provide a framework, in both core content classes and the STEM lab, within which students will interact with the world around them and uncover opportunities for positive change.

Collaborations/Partnerships: The Magnet School of Global Studies and Leadership will draw upon a diverse array of partners to promote student awareness and competencies linked to the magnet theme. These partnerships will include: Reach the World to connect students to volunteer world travelers; Big Idea Week to link students with STEM professionals to design innovative solutions to pressing issues; the BEAM Center to design opportunities for project-

based learning aligned to the Maker Movement; Global Education First Initiative to engage students in advocacy work around worldwide access to quality education; Google for Education to provide access to collaborative platforms and interaction with partners around the globe; The Queen's District Attorney's Office to expose students to social issues close to home as well as strategies for argumentation; Flushing Town Hall to promote understanding of global arts, theater, music, and dance traditions; New York Institute of Technology to provide afterschool STEM enrichment opportunities and parent programs aligned to the theme; and Columbia University's Center for Technology and School Change for support in sustainability planning.

Professional Development: Teachers at The Magnet School of Global Studies and Leadership will participate in deep and sustained professional development in the instructional methods necessary to implement the magnet program. In partnership with the Buck Institute, teachers will receive intensive training in unit development utilizing project-based learning to promote sustained student inquiry. The New York Institute of Technology will further support teachers in the integration of STEM into the PBL framework while also guiding the development of service learning projects in conjunction with STEM professionals. Such projects may include working with architects to design and construct homes for Habitat for Humanity or working with IT experts to conduct technology workshops for the elderly. Professional development in the use of technology for research and as a medium for documenting learning will be conducted in conjunction with Columbia University's Center for Technology and School Change. In addition, partners from GoldMansour and Rutherford will provide PD and resources to ensure that all students, including ELLs and those with special needs, are equipped with differentiated lessons and materials to promote access to all STEM activities and tools the school offers. Ongoing training on the Schoolwide Enrichment Model conducted by Renzulli Learning will enable teachers to

implement rigorous enrichment opportunities tailored to the individual needs of students. The National Paideia Center will provide training on the use of Socratic Seminars to facilitate student discourse and debate. Teachers in the elementary grades will receive training on the Engineering is Elementary curriculum for use in thematic transdisciplinary units.

Parent Program: Parents will play an important role in the life of The Magnet School of Global Studies and Leadership. The school's focus on global studies will draw upon the diverse backgrounds of families through quarterly multicultural celebrations featuring student performances focused on promoting international awareness. Global Challenges throughout the school year will extend the school day by inviting parents and students to learn about issues facing communities around the world and work side by side to design and test targeted solutions. Service learning projects aligned to thematic units will empower students and parents to engage in shared learning opportunities around the global studies and leadership theme to benefit their neighbors and the larger New York City community. Parent representatives will serve on the School Leadership Team, and will be an active part of the shared decision-making process in conjunction with school staff. Finally, monthly "Coffee & Conversation" meetings will provide the opportunity for parents and families to engage with the school principal and to share feedback on implementation of the magnet program.

PS 201 : A STEAM Magnet School

PS 201 will provide a significantly revised magnet program for its students. The school became a magnet school in 1989 as the School of Telecommunications. The program included a large technology component, which at the time over 25 years ago, was new and innovative in-

cluding a telecommunications laboratory equipped with, as examples, modems to access data banks and bulletin boards, VCR research stations, a fax machine, and "other state of the art telecommunications equipment." The school now has updated technology, but it is technology common to all New York City schools, thus it is not surprising that PS 201 has lost its effectiveness as a magnet school. Stakeholders in the school and community at large recognized the entire curriculum and approach to instruction, not to mention technology, needed to be significantly revised as the school fell further and further behind in engaging students in rigorous instruction. Together they decided on the new STEAM theme, a completely different theme, where students, teachers and parents will be engaged in authentic learning focused on 21st century skills. PS 201will become a **STEAM s**chool, where Science, Technology, Engineering, Arts and Math are taught through project-based, hands-on, investigation, where all students engage in authentic learning experiences, as they identify and solve real problems in their community and the world. This approach moves curriculum and instruction beyond content area literacy to transdisciplinary units where teachers select a topic of study based on student interest, curriculum standards, and local resources, find out what students already know and help them develop their own questions Teachers provide resources and opportunities to explore, and students create solutions and share their work with others in a culminating activity that is reviewed and assessed. Through this approach, students take ownership of learning and apply their knowledge and skills in real world contexts, where math and science are more relevant and motivating.

Through the Engineering Design Process students will identify problems; observe/ask; imagine; plan; create; test; improve; and present their work to professionals in related fields. Teachers engage in professional development to move them from single subject teaching, to a transdisciplinary approach, organizing curriculum around student questions while providing stu-

dents with print and technological resources. In the transdisciplinary approach, teachers bring together twenty-first century skills, knowledge and attitudes, with real-world applications and problem-solving strategies. In this approach "the essential question is the driver, the STEM learning objectives are the roadmap and the students' previous experiences are the guideposts." (Vasquez, Sneider & Comer, 2013). Teachers and students will develop Essential Questions whose aim is to stimulate thought, provoke inquiry, and engage students in the richness of a topic. Project-Based Learning will be used as a means to move teachers to this transdisciplinary approach where students, teachers and parents work together to develop projects that answer essential questions. Student work throughout PS 201 will be STEM centric, where classrooms and hallways display student projects, murals, multimedia presentations, and design challenges that answer Essential Questions. Partners from Creative Learning Solutions will facilitate the school's STEAM transformation through curriculum support and assistance in school redesign projects with students.

A sampling of the units that will take place in PS 201 show how they will implement a transdisciplinary STEAM program : First grade students walk through the community, observing buildings, stores, green spaces, roads and transportation using Google Maps, Big Shot Cameras, and video flip cameras to capture the community. Their questions center around how a community is developed and their Essential Question is: "In what ways are communities developed and who designs them?" They work with a resident architect and community developer with their partner the Salvadori Center. Student teams develop replicas of their community using LEGOS, blocks, containers, and other materials in the school's Maker Space Lab**,** using a layout App and working with SIM City. They measure buildings, roads and highways, keeping within given parameters. They develop oral, written or media presentations of their work to the resident architect

and community developer for feedback. Third grade students attend a concert and then try out various instruments. They want to know, "How do the design of different instruments, enable them to make different sounds?" They work in music class and in science, and with their parents to develop instruments from household items, as they read and learn about sound. They develop an orchestra and song that they perform for musicians. Working with the Wellness Council, fourth grade students learn of the local need for fresh vegetables. They read articles on nutrition in urban areas and study availability and costs of fresh vegetables in their neighborhood. Their Essential Question: is "In what ways can students help solve the community's fresh produce problem?" They determine they can grow fresh vegetables with support from students, family, and community partners. They determine the site and size of the garden plots, the yield, materials and costs. Working with New York Sun Works and New York Cares**,** reading on urban gardens, and using a garden design App, they plan and develop their garden plots and develop a plan to sell produce at low cost at the Pomonok Farmer's Market. Proceeds will be used to purchase supplies for next year. New York Sun Works and New York Cares staff judge the success of their plan. Fifth grade students read articles about water problems in Flint Michigan and in countries studied in Social Studies. Their Essential Question is: "In what ways can water quality be changed?" They work in teams to test water in school, at home and the community. They research water quality through data analysis and on line articles. They design water filtration systems and develop multimedia presentations to present to a panel of engineers.

STEAM instruction will be infused across content areas through in-class units; incorporating arts and literacy through non-fiction, primary sources, and technical writing. In addition to in-class units, STEAM enrichment courses in related art; robotics; LEGO lab; multimedia; hy-

droponic gardening, Engineering is Elementary; inventions; and STEAM residencies will be implemented. There will be a Maker Space for students to develop projects with their teachers.

Collaborations/Partnerships: Staff will focus on Partnerships to support the STEAM program and professional development. New York City has many organizations that will provide significant support for the PS 102 STEAM program. Fundamentals of STEM will be explored through a partnership with the Salvadori Center**,** where students explore their community using buildings, bridges, and parks to bring math and science to life and to spark students' interest and questions. The Hall of Science will provide students with Design Lab experiences and 3D presentations. They will provide virtual visits using video conferencing and provide maker experiences for parents. Partnerships with NY Sun Works, NY Cares, Grow NY, and the National Wildlife Federation's Eco Schools will help create hydroponic garden labs, outdoor gardens and in-school green spaces. They will train parents to support and maintain the spaces. The National Museum of Mathematics will provide student sessions on shapes, symmetry and patterns as the foundation of mathematical thinking. Students in grades 2-5 will work in the Tessellation Station, studying math from nature to art to architecture. The New York Institute of Technology (NYIT) will provide after school STEM enrichment programs and STEM residencies, with support from the Society of Black Engineers (NSBE) and Society of Women Engineers (SWE) and they will conduct Little Bits and LEGO Robotics clubs, engineering and design classes. They will provide parent programs on STEAM and financial literacy support.

Professional Development: Professional development will be provided through workshops with in-class follow up, collaborative planning, weekend retreats and after school multi-discipline meetings. New York Institute of Technology (NYIT) will provide support for faculty and students to develop STEM themed Service Learning Projects and connect students and

teachers with STEM professionals. They will support teachers in the integration of STEAM PBL units created with the Buck Institute**,** and will teach teachers to write PBL units. The Center for Technology and Change will provide customized professional development, meeting with teachers and administrators to target technology resources to help develop customized plans. They will focus on Technology Integration through ongoing PD that engages teachers as designers of student-centered, authentic learning experiences that leverage digital tools to facilitate student inquiry. They will engage teachers in design challenges that use technology tools and apps to facilitate learning and will provide PD on how to exhibit student work using technology presentation tools**.** Teachers will engage in on site PD for Engineering is Elementary to build engineering and technological literacy through the EiE STEAM units across content areas.

Parent Program: Parents will be involved in all aspects of the STEAM theme through inclusion in the planning process, exploring the community with their children and working with their children on projects. NYIT will provide STEM design process workshops for parents to support them in working with their children. The school will use technology and online platforms to reach out to parents through live stream parent workshops, meetings and events that allow the school to post parent activities parents can view on their own time. The school will also purchase online tools such as Jupiter Grades that provide an online platform for parents to interact with teachers and keep track of homework, grades and school information.

After School Programs at the Magnet Schools**.** Each school will have an after school program. Descriptions of the schools' after school programs are included in the school descriptions, above, and in *Priority 4 – STEM Education.* After school STEM activities will be developed by project partners and the magnet resource teachers and will be related to the theme of each school. All after school STEM activities will be project based, and require students to work together in the

same way they would during the school day. To ensure that all parents are aware of after school activities, they will be described during every parent activity, described on the website of each school, and be part of the normal communication that the school has with its families. Attendance will be taken for after school activities to ensure that students from all racial, ethnic and socioeconomic groups will take part. The goal is for after school activity participants to reflect the racial, ethnic and socioeconomic diversity of its school.

Out of School Informal Science As described in *Priority 4- STEM Education* and embedded in each school's magnet theme description described above, partners will also create family activities for students and family members to engage in at home and at the partner institutions. Each school will hold family days to get families started on these projects and to bring families with different backgrounds together in school and at partner institutions. For example, having family evenings or Saturday activities in school (time to be determined each school's School Leadership Team) four times each year and then to have follow-up family activities at partner institutions, would help families from different backgrounds to get to know each other within the context of school and outside of school.

(b)(2) The extent to which the applicant demonstrates that it has the resources to operate the project beyond the length of the grant, including a multi-year financial and operating model and accompanying plan that demonstrates commitment of any partners; evidence of broad support from stakeholders (e.g., State education agencies, teachers' unions) critical to the project's long-term success; or more than one of these types of evidence.

Districts 25 and 30 have an outstanding record of continuing programs after grant assistance is no longer available and fully expect to continue the proposed Magnet Schools Assistance

Program after federal assistance is no longer available. **As such, at the end of magnet funding, Districts 25 and 30 will continue to fund the magnet initiative through the strategic deployment of existing revenue streams, including local, state, and federal funding, as well as aggressive grant seeking.** The district will leverage activities undertaken during the grant period and facilitate continued implementation of the magnet program through intentional operational and financial planning, broad grant-seeking activities, and expanded collaborations with outside partners. **Magnet schools in Districts 25 and 30 that received Magnet Schools Assistance Program funding during previous cycles have been sustained following MSAP funding, an example of the established supports and partnerships in place to promote continued implementation of the magnet concept.**

Sustainability Planning: The project director will coordinate the development, starting early in the project's first year, of a detailed plan for program sustainability at each magnet school. S/he will bring together a sustainability planning team that contains individuals with decision-making authority and is representative of both internal and external stakeholders. Key to this plan will be the integration of concrete operational supports as well as tangible resources that will build upon the substantial programmatic foundation established during the grant period.

The team will use the Planning for Sustainability Toolkit, developed by The MSAP Center in partnership with The Finance Project, to explicitly articulate a concrete theory of action for sustainability, including work to: (1) prioritize the project activities to be sustained, including instructional, recruitment, and outreach strategies; (2) establish the project's ongoing personnel, fiscal, and other needs; (3) identify the resources available to meet those needs; and (4) determine the monetary and other resources to fill any identified shortfall. By maintaining a strategic orientation towards financing, and utilizing the flexibility afforded under the Every Student Suc-

ceeds Act, school and district officials will utilize existing resources to ensure the continuation of grant activities.

In accordance with the guidance provided in the Department of Education's April 13th, 2016 *Dear Colleague Letter*, existing federal funding streams will be leveraged to continue the thematic program at each magnet school, including: Title I funds to increase access to rigorous STEM coursework for all students, provide field trips to promote real-world hands-on STEM experiences, and to purchase mobile learning devices and create STEM labs and specialized learning spaces that promote active, inquiry-based learning; 21st Century Community Learning Center grants to provide high-quality STEM programs and activities outside of school hours; and Title II funds to provide sustained professional development to school staff on STEM methods and content; to create digital professional learning communities with STEM professionals; and to provide training to implement blended learning models to meet the needs of all students, including English learners and students with disabilities.

Fair Student Funding, which is based on a school's enrollment and student characteristics, constitutes the bulk of the funding available to schools in New York City. Principals have flexibility to utilize these funds as needed to ensure the execution of a rigorous academic model, which will include unique magnet programming at the proposed schools. Funding allocated through the New York State Contracts for Excellence are dispersed to New York City schools to be used for key program areas, including time on task and teacher quality initiatives and will also be used, along with state and federal categorical funding, such as those listed above, as supplemental support for the magnet program following the termination of grant funding.

The sustainability planning team will continue to meet regularly throughout the grant period to continuously refine a multi-year data-driven sustainability financial and operating plan,

aligned to the priorities and resources identified, and informed by feedback from the rigorous evaluation cycle.

There is broad support for and commitment to the project from the project partners. (Please see the letters of commitment from the partners in the appendix.) As part of the sustainability planning, project staff will work with the partners throughout the project to map out the level of services that will be continued by them after Federal funding is no longer available. **There is also broad support from school stakeholders, including the teachers' union, school leadership teams, and New York City Department of Education personnel.** (Please see letters of commitment from stakeholders in the appendix.) The full resources of these stakeholders will be marshalled to secure funding to sustain the project.

Aggressive Grant-Seeking: Districts 25 and 30 will continue to coordinate grant-seeking efforts with district and NYC DOE staff throughout the MSAP project period to apply to funders who will both enhance magnet activities during the period of MSAP funding and address ongoing program costs at the end of that period. In addition to the funding streams listed above, federal grants solicited may include the applications to the following agencies and programs: National Science Foundation; National Endowment of the Arts; National Endowment for the Humanities; National Aeronautical and Space Agency; Innovative Approaches to Literacy; Teacher Incentive Fund; Promise Neighborhoods, Investing in Innovation Funds (i3); Elementary and Secondary School Counseling Programs. New York State funding may include proposals to the following: Title I School Improvement Grant; 21st Century Community Learning Centers Program; McKinney Vento Grant; Learning Technology Grant; and Carl D. Perkins Career and Technical Education Act Grant. Additional support may be sought from the following business/association/foundation programs intended to support social and educational reform as well

as well as advancement of the STEM domains: Ford Foundation; The Kresge Foundation; The GE Foundation; The New York Life Foundation; The Verizon Foundation; The Prudential Foundation; The Braitmayer Foundation; The Siemens Foundation; National Grid Foundation; The Heckscher Foundation for Children; Carnegie Corporation of New York; Deutsche Bank Americas Foundation; The Bill & Melinda Gates Foundation; Fund for Public Schools; The Coca-Cola Foundation: Educational Programs; American Honda Foundation; National Council of Teachers of Mathematics; ASCD's Teacher Impact Grants; JPMorgan Chase & Co.; Corning Foundation; AT&T Foundation; The New York Community Trust; and New York Foundation.

(b)(3) The extent to which the training or professional development services to be provided by the project are of sufficient quality, intensity, and duration to lead to improvements in practice among the recipients of those services.

An Institute of Education Sciences, U.S. Department of Education (IES) funded research review sponsored by the Regional Education Laboratory, Southwest (REL SW), (Yoon, et al, 2007), (Yoon, 2008) identified nine studies (after examining more than 1,300) on the effect of teacher professional development on student achievement that met the What Works Clearinghouse evidence standards. An analysis of these studies found that "teachers who receive substantial professional development—an average of 49 hours in the nine studies—can boost their students' achievement by 21 percentile points." The studies that had 30 hours or more of professional development showed a positive and significant effect on student achievement from professional development. All nine studies focused on elementary schools and included workshops or summer institutes. Eight included follow-up sessions supporting the main

professional development event illustrating the importance of follow-up activities after workshops. Even though the content of the professional development varied, the effect sizes were about the same: 0.51 for science, 0.57 for mathematics, and 0.53 for reading and ELA. Each of the nine studies links intensive professional development with improved classroom teaching resulting in higher student achievement as does this project. We have identified one of these studies as demonstrating Evidence of Promise for the Professional Development (PD) component of the project logic model for this grant. It is Saxe, et.al (2001) Enhancing students' understanding of mathematics: a study of three contrasting approaches to professional support. (Please see *Competitive Preference Priority 5- Supporting strategies for which there is Evidence of Promise* for details on this study.) Based on an extensive review of the PD literature, Dr. Linda Darling-Hammond, et al, (National Staff Development Council, 2009) recommends that professional development should (1) be intensive, ongoing, and connected to practice; (2) focus on student learning and address the teaching of specific curriculum content; (3) align with school improvement priorities and goals; (4) build strong working relationships among teachers. The Professional Development for this project will follow these research based recommendations. Annual professional development performance measure targets are for each teacher in a magnet school to receive at least 50 hours of PD to support curriculum and instruction improvement and at least 50 hours of PD to support magnet theme integration. **The proposed PD, supporting the professional development component of the logic model, is comprehensive and rigorous and, as demonstrated in the research, is of sufficient intensity and duration to lead to improvements in practice among the recipients of those services. This research also demonstrates the strong theory on which the project is based.**

The project's rigorous magnet PD program, using the *Great Schools* Framework as a blueprint, will provide intensive site-based and job-embedded professionalizing support to develop and implement the magnet theme. Embedded professional development in all magnet schools will include demonstration lessons and coaching performed by magnet resource teachers, curriculum development/writing facilitated by magnet resource teachers, the project STEM/Curriculum planner, inter-visitations among classroom teachers, and consistent metacognitive engagements to pause, think, write, and reflect on the efforts to help all students achieve excellence (Yoon et al., 2007).

Regular collaborative meetings of magnet faculty and staff will be organized into a variety of Professional Communities based on areas of concern, especially those related to their magnet themes. These critical teams will develop internal faculty driven leadership and encourage each other to think and learn about curriculum practices that have direct applicability to their classrooms (Bryk, et al., 1999; Leithwood, Begley & Cousins, 1994; Lieberman, Saxl, & Miles, 1988; Little, 1982, 1990; Louis, Kruse, & Bryk, 1995; McLaughlin, 1993). The implementation of the Professional Community (Bryk, et al., 2010) will result in meaningful PD as well as a series of metrics to measure their effectiveness around specific practices: (1) public classroom practice, in which teachers observe other teachers teaching; (2) reflective dialogue, in which teachers have the opportunity for critical conversations; (3) peer collaboration, in which teachers work together to develop curriculum and other school improvement initiatives; and (4) new teacher socialization, in which faculty proactively support its newest members. (Bryk, et al., 1999, 2010; Lieberman, Saxl, & Miles, 1988; Little, 1982, 1990).

Utilizing, both NYC resources, such as *Resources for Teacher Teams* (NYC DOE, 2016c) presented in the Common Core Library, and the resources of MSAP funded partners,

such as Buck Institute, the BEAM Center, Big Idea Week, the New York Institute of Technology, and the Center for Technology and School Change, the Professional Learning Community will work collaboratively to build shared understanding of best practices and to increase differentiation and rigor across each of the core content areas through the lens of the magnet theme. Research has found a correlation between professional development and both improved instruction and student achievement when professional development focuses on the teacher's actual curriculum materials, standards, and assessment (Yoon et al., 2007). These opportunities for facilitated dialogue, coupled with structured guidance from magnet resource teachers and project partners, will permit teachers to navigate the implementation of the integration of the magnet theme, the STEM curriculum, and the Common Core in a way that meaningfully and demonstrably impacts student achievement.

(b)(4) The extent to which the proposed project is supported by strong theory

As discussed in the above sections *(b)(1)* and *(b)(3)*, the project is rooted in solid research and demonstrates the project's foundation in strong theory. The **Theory of Action** is: (1) If all teachers, in each school, receive 50 hours each year of high quality Professional Development focused on Improvement of Core Subject Curricula and Instruction, and 50 hours each year on the Development of a Magnet Theme and its Integration into those curricula, then teachers will develop and implement Quality Magnet Curriculum and Instruction (a special curriculum capable of attracting substantial numbers of students of different racial and socioeconomic backgrounds). (2) If Quality Magnet Curriculum and Instruction is taught to students and becomes the core of the school's instructional program, and that is widely known by students and their fami-

lies, then a large, diverse group of students will apply to a magnet school and minority group and socioeconomic isolation will be reduced. (3) If a magnet school's students are exposed to Quality Magnet Curriculum and Instruction for 10 hours per week (project year 3 performance measure target), they will then attain higher levels of achievement than carefully matched students who do not attend a magnet school.

The project logic model, based on the theory of action, is presented below. School level project models are included as an appendix.

NEW YORK CITY DISTRICTS 25 & 30 DISTRICT LEVEL LOGIC MODEL

Project Resources	Project Activities	Project Outputs	Short Term Outcomes	Medium Term Outcomes	
				Annual Measures	3 Year Targets
District Level					
MSAP Support for Project Director, 2 full time staff, materials, etc.	Project Management	Good Fidelity of Implementation	School Benchmarks, fidelity to budget	MSAP PMs attained APR approved	Compliance review is good
	Desegregation: Student recruitment, application and selection activities	**Desegregation**: Large and diverse applicant pool. Enrollment lists	**Desegregation**: Applicant pool benchmarks	**Annual PM 1.1-1.6** Reduced MGI & SES Isolation. # applications > 65 per school	**PM 1.1-1.5** Reduced MGI & SES Isolation (6 & 12 percentage points)
NYC DOE & District Support, Policies, and Personnel	Oversight of Comprehensive Education Plans to ensure curriculum and instruction improvement and magnet theme integration				
School Level					
School Leadership and MSAP Staff (2-3 full time MRTs for each school)	**Desegregation**: Student Recruitment (e.g., open houses)	**Quality Magnet Curriculum and Instruction**: High quality, peer reviewed units that integrate the magnet theme with core academic subjects using new/improved instructional practices that are taught to students In-school and off site learning with partner institutions (Discrete Magnet Classes Presenting Magnet Theme to Students as Separate Subjects as Supplement to Integrated Units)	**Benchmark Examples Quality Magnet Curriculum and Instruction**: Improving C & I e.g., 85% of teachers agree that school focused on CCSS, NGSS alignment; Planned/Implemented Magnet Curriculum Dosage to date of site visit meets standard; Student Engagement, Motivation Increase; Heterogeneous Class standard attained by each site visit. PD e.g., Planned + Implemented to visit date meets standard. Magnet Theme and Systemic Reform FOI improves or is excellent.	**Annual Performance Measures (PM)** **PM 2.1 and 3.1:** Unit dosage and Quality targets attained; **PM 6.1:** Classes are Heterogeneous **PM 4.1-4.5** Increased reading, math and science test scores for all students	**PM 4.1-4.5** Increased Test Scores: reading, math, science **PM 4.6** Students will master magnet curriculum **PM 3.1** Magnet Theme dosage 10 hrs/ week **PM 2.1** 100% Units Are High Quality
Teachers' Knowledge, Skills and Experiences	**Improvement of Curriculum, Instruction & Student Academic Supports**: Develop/revise core academic magnet units based on NYC Frameworks and reforms/ supports (e.g. UDL & PBL)				
Students Interests, Needs, Skills, Knowledge	**Magnet Theme Development and Integration**: Develop and Integrate magnet theme into improved academic content (Develop magnet classes.)				
Partners	**Professional Development**: 50 hours to support Curriculum and Instruction Improvement and 50 hours for Magnet theme Integration			**Annual PM 5.1, 5.2** PD for C&I Improvement and Magnet Theme. 50 hrs/teacher for each category	**PM 5.1, 5.2** PD for C&I Improvement, Magnet Theme. 150 hrs/teacher for each.
Parents	**Parent Activities** Planning	**Parent Activities** Activities in 5 areas.	**Parent Activities Benchmarks**	**Parent Activities PM 6.2**	**Parent Activities** PM 6.2

(c)Quality of management plan

(c)(1) The adequacy of the management plan to achieve the objectives of the proposed project on time and within budget, including clearly defined responsibilities, timelines, and milestones for accomplishing project tasks.

The Districts 25 and 30 Consortium Magnet Schools Assistance Program management plan has clearly defined responsibilities, timelines and milestones that will ensure that the objectives of the project will be met on time and within budget. **The magnet schools' line of management** goes from each principal to the Community School District Superintendent, and finally to the Chancellor of the NYC DOE, who oversees all of the city's 32 community school districts. Each district superintendent will be responsible for insuring that the principals receive all the necessary tools they need to meet MSAP goals and objectives and implement the magnet project with fidelity. The project director will work closely with each school's principal and report regularly to the two district superintendents to achieve the objectives of the magnet project. The project director will manage all aspects of the MSAP project and supervise all magnet district-level staff; a full time STEM/curriculum planner, and a full time community outreach specialist.

NYC DOE Human Resources staff will assist the districts in hiring qualified, diverse personnel for the administration and implementation of the MSAP. Human Resources will ensure fair and equitable access to opportunities, and hire staff based upon the highest qualifications. NYC DOE staff from the Office of School Enrollment will facilitate the application and student selection process. NYC DOE is more than adequately equipped with the appropriate personnel to accomplish project goals while maintaining fiscal controls. Grants, budget, and contract officers will provide appropriate internal controls to ensure that Districts 25 and 30 will ad-

equately safeguard their assets, check the accuracy and reliability of their accounting data, promote operating efficiency, and encourage compliance with prescribed management policies and fiscal requirements. These officers will maintain fiscal control in adherence to the NYC DOE's accounting and auditing system, Chancellor's Regulations, and all regulations and laws established by the Federal Government and New York State Education Law. They will work closely with the project's Director of Magnet Schools to ensure the proper management of MSAP grant funds.

Clearly defined responsibilities, timelines, and milestones for accomplishing project tasks. The logic model presented above in section *(b)(4)* is the foundation of the project. Project objectives to support the 5 core activities of the logic model are: (1) **desegregation** - objective 1: minority and socioeconomic isolation will be reduced at the proposed magnet schools; (2) **improve curriculum, instruction and student academic supports** and (3) **magnet theme integration** – objective 2: all students will receive instruction that includes their school's systemic reforms and magnet themes in units and courses aligned with CCSS and state standards;– objective 3: all students at each magnet school will receive magnet instruction; objective 4: student academic achievement will increase each year in ELA, math and science; objective 6a: all students in project schools will have equitable access to high quality education; (4) **professional development** – objective 5: provide professional development related to improvement of curriculum, instruction, and magnet theme development and integration; and (5) **parent involvement** – objective 6b: there will be an increase in parent participation at each magnet school. **The following table presents the objectives of the project, the annual activities/milestones related to the objectives, the person(s) responsible for the activities/milestones, and the timelines for accomplishing the annual activities/milestones.**

Districts 25 and 30 Annual Management Timeline (Oct 1 – September 30)			
Objective	**Activity/Milestone**	**Person(s) Responsible**	**Timeline**
1	Develop recruitment plans, including marketing/public information campaign	Community Outreach Specialist, school recruitment teams	Sept – Oct
1	Implement marketing/public information campaign	Community Outreach Specialist, school recruitment teams	Nov – Aug
1	Recruit students	Community Outreach Specialist, school recruitment teams	Nov – Aug
1	Application period	NYC DOE Office of School Enrollment	Oct-March PreK Oct –Jan K-5 Oct-Dec 6-8
1	Selection of Students	NYC DOE Office of School Enrollment	May – PreK March – K-5 May 6-8
2,3,4,6a	Establish Magnet Advisory Board (determine membership each year)	Project director, district superintendents, principals, school leadership teams	Oct

Districts 25 and 30 Annual Management Timeline (Oct 1 – September 30)			
Objective	**Activity/Milestone**	**Person(s) Responsible**	**Timeline**
2,3,4,6a	Magnet Advisory Board meetings	Magnet Advisory Board members (parents, school leadership team representatives, community representatives, teacher representatives)	Monthly (or as determined by advisory board members)
2,3,4,6a	Magnet unit development/discrete magnet class development	Project STEM/curriculum planner, project partners, magnet resource teachers, teachers	Oct- Sept
2,3,4,6a	Magnet unit/discrete classes implementation	Teachers	Oct – June, Sept
2,3,4,6a	Magnet unit quality review	Project STEM/Curriculum planner, magnet resource teachers, teachers	Oct – Sept
2,3,4,6a	Implement heterogeneous classes	Teachers	Oct- June, Sept

Districts 25 and 30 Annual Management Timeline (Oct 1 – September 30)			
Objective	**Activity/Milestone**	**Person(s) Responsible**	**Timeline**
5	PD related to the improvement of curriculum and instruction and PD related to the magnet theme (PLCs, workshops, institutes, courses, coaching, mentoring)	Project PD partners, project STEM/curriculum planner, magnet resource teachers, teachers	Oct – Sept
6b	Development of parent involvement plan	School leadership teams, district parent advocates, school parent coordinators, magnet resource teachers	Oct- Nov
6b	Implementation of parent involvement activities	District parent advocates, school parent coordinators, magnet resource teachers, teachers	Nov – Sept

(c)(2) How the applicant will ensure that a diversity of perspectives are brought to bear in the operation of the proposed project, including those of parents, teachers, the business community, a variety of disciplinary and professional fields, recipients or beneficiaries of services, or others, as appropriate.

In order to ensure that a diversity of perspectives are brought to bear throughout the project, the project director, the district superintendents, school principals and school leadership teams will form a committee to establish a Magnet Advisory Board for the project. The Advisory Board will consist of representative parents and teachers from the four magnet schools; representatives from the business community, including, but not limited to, the tech specialists and entrepreneurs working with the schools on their STEM programs; union representatives from the schools; and others to be determined by the committee. The Advisory Board will meet monthly or as often as established by Advisory Board and will review progress the schools are making towards meeting project objectives, including reviewing summaries of formative evaluations provided by the evaluator and the project director. The members of the Advisory Board will provide input to the project director on the operation of the project, including suggestions for project improvement, where necessary. The membership of the Magnet Advisory Board will be established each project year to ensure that the board continues to reflect a diversity of perspectives.

(d) Quality of Personnel: The Secretary determines the extent to which the project director (if one is used) is qualified to manage the project.

All staff, both funded and not funded by the project will be highly qualified. **Project Director - 1.0, 100% FTE.** The qualifications for the magnet director have been established to ensure that the successful applicant possesses the commitment, knowledge, experience, and interpersonal skills needed to provide strong and effective leadership to the project. The position will be filled in accordance with the regulations of the New York City Department of Education. Following the notification of an MSAP award, a magnet director will be selected. Districts 25 and 30 are fortunate to have a pool of qualified applicants, including current and former magnet principals. Applicants for the position will be given consideration based upon the NYC policy of non-discrimination based on race, religion, color, national origin, sex, age, or disability. Consideration for employment will also be based on the NYC policy of affirmative action. **The candidate selected for magnet director will have the following qualifications:** (1) Advanced degree in education; (2) State certification as School Administrator; (3) At least 3 years of experience as a district level or school level supervisor or administrator; (4) At least 5 years experience in curriculum development; (5) At least 5 years experience as a staff developer/teacher trainer; (6) Experience in and knowledge of systemic reform models and innovative programs; (7) Experience in implementing PBL and STEM instruction; (8) Experience and knowledge related to working with parents of different races, ethnic, social and economic backgrounds; (9) knowledge of the Common Core Standards and NYS standards; (10) Experience working with community-based organizations, cultural institutions, agencies and other groups in initiatives related to systemic reforms and innovative educational methods and practices; (11) Demonstrated leadership in the

development of programs and courses of instruction that substantially strengthen students' knowledge of academic subjects and marketable vocational skills; (12) Demonstrated abilities in areas associated with effective leadership; and (13) excellent interpersonal skills.

Duties and Responsibilities of the Magnet Director – 100% FTE. The magnet director is responsible for coordinating all aspects of the Magnet Schools Assistance Program. The magnet director will: (1) work closely with the district superintendents and the magnet principals to coordinate all aspects of the MSAP project; (3) manage all aspects of the MSAP project; (4) supervise the magnet STEM/curriculum planner and the community outreach specialist; (5) coordinate the activities of magnet resource teachers; (6) ensure that the activities of the magnet program are continually focused on promoting desegregation in accordance with the project's desegregation plan; (7) assist each magnet school's principal and School Leadership Team in implementing their magnet school program, including: desegregation strategies, systemic reforms, innovative curriculum and practices, incorporating STEM instructional strategies into each school's curriculum, new organizational designs, professional development, and adaptation of instruction to special student needs, all aligned to meet Common Core Standards and New York Standards; (8) work closely with District 25's and 30's parent advocates and the schools' parent coordinators on student recruitment and information outreach to ensure informed parental decision making in all aspects of the Magnet Schools Assistance Program; (9) work closely with the Queens Borough Field Office Center staff to support all curriculum initiatives and manage fiscal and budget aspects of the project; (10) coordinate the implementation of the project's evaluation plan with the project evaluation contractor and monitor the collection of all necessary data; (11) keep all project records; (12) monitor and evaluate the effectiveness of the project's desegregation plan and make any necessary revisions/changes; and (13) coordinate with other NYC DOE

and district staff to supplement project funds and to continue funding of the project after federal funding is no longer available.

(d)(2) The Secretary determines the extent to which other key personnel are qualified to manage the project.

Other key personnel who will be funded by the project include the community outreach specialist; the project evaluation contractor; and other project consultants. Key staff who will support the project, at no cost to the project, include the District 25 and District 30 Superintendents and the principal for each proposed magnet school. A description of these key personnel is provided below. In addition, the project is requesting magnet resource teachers. A description of these positions will be found in a later section.

Community Outreach Specialist: **1.0 - 100% FTE Qualifications:** Although all personnel hiring must conform to the NYC DOE requirements and specifications, it is expected that Ms. Kathy Venezia will be selected to be the project community outreach specialist. She is currently the recruiter for the NYC DOE District 28 Magnet Schools Assistance Program, which is just completing the third year of a three year project. Thus, Ms. Venezia will be available to work full time on the project. The community outreach specialist is required to have the following **qualifications:** (1) a Bachelor's degree; (2) experience in media and public relations; (3) strong organizational skills; (4) experience working with parents and parent groups from different racial, ethnic, cultural, and economic backgrounds; (5) willingness to work on a flexible schedule that will include evening and Saturday meetings/activities; (6) strong oral and written communication skills. (7) Knowledge of computers including maintaining databases and using

spreadsheets, word processing and desktop publishing applications; and (8) familiarity with the operations of the districts and schools in New York City.

Ms. Venezia more than meets these requirements. Ms. Kathryn Venezia has eleven years experience as an MSAP Recruiter (for this project her title will be community outreach specialist) for the New York City Department of Education. She has been the project recruiter for five New York City districts – Districts 20, 21, 28, 30 and 31. Her expertise is demonstrated by the success of the vast majority of magnet schools in meeting their targets for the number of applicants while she was project recruiter, an important performance measure in each MSAP project. As project recruiter, Ms. Venezia has worked collaboratively with the Magnet Director, the District Parent Office, and each magnet school's Parent Coordinator, School Leadership Team and parent associations in order to develop and coordinate a comprehensive community-focused outreach program for each school. She has worked with each school's School Leadership Team and Parent Coordinator in order to develop a recruitment plan. She has provided school tours to interested parents and community members and has organized and facilitated numerous Open Houses and School Fairs in order to highlight the magnet program at each school. She has met frequently with school-based magnet resource teachers in order to identify and prioritize activities for targeted recruitment. Ms. Venezia holds a MS in Business Management from CUNY College of Staten Island and a BA degree.

Responsibilities: The community outreach specialist will have primary day-to-day responsibility for all outreach and recruitment activities. The community outreach specialist will: (1) work collaboratively with the magnet director, the districts' parent advocates, and each school's parent coordinator, School Leadership Team, Parents Association, and other parent groups; (2) work with each school to develop and coordinate a comprehensive community-

focused outreach program for the school; (3) develop, in conjunction with each school's School Leadership Team, a recruitment plan, which will include, in multiple languages, brochures, videos/DVDs, flyers, press releases, radio and television public service announcements and the like; (4) inform parents, community members, and community agencies about the magnet programs at the different schools; (5) attend district and citywide parent meetings; and (6) participate in annual School Fairs and other school-community activities, and coordinate presentations related to the magnet schools.

Magnet STEM/Curriculum Planner: 1.0 100% FTE Qualifications. As with the project recruiter, although all personnel hiring must conform to the NYC DOE requirements and specifications, it is expected that Ms. Sharon Rosen will be selected to be the project STEM/Curriculum Planner. **The STEM/Curriculum Planner will be required to have the following qualifications:** training and expertise in STEM; at least 5 years experience in curriculum development and professional development, focusing on STEM and PBL, at the school and district level; at least 5 years experience working with STEM organizations and partners; experience and knowledge related to working with parents of different races, ethnic, social and economic backgrounds; demonstrated expertise in implementing the Common Core Standards and NYS standards; and experience working with community-based organizations, cultural institutions, agencies and other groups in initiatives related to systemic reforms and innovative educational methods and practices. **Ms. Rosen certainly meets these qualifications**.

She has 14 years experience working in NYC schools, with special expertise in STEM and PBL. She has worked for 9 years in NYC magnet programs in Districts 3, 25 and 28 as a magnet project director (District 3), STEM curriculum specialist, curriculum planner, and magnet resource specialist and was a middle school classroom teacher in a magnet school. As mag-

net curriculum specialist, STEM curriculum specialist, and magnet resource specialist she has provided ongoing professional development in developing PBL units in schools with STEM and engineering themes; she co-wrote curriculum for the STEM Institute of Manhattan and Robotics School and the Early Childhood Discovery and Design School; she facilitated partnerships with numerous partners that provide STEM curriculum and PD services, e.g., the New York Institute of Technology, the Boston Museum, the Salvadori Center, the New York Hall of Science, LEGO education, and New York Sun Works. She has also provided extensive professional development in UbD and PBL customizing units of study, crafting theme-based essential questions and enduring understandings, curriculum mapping, and developing and implementing differentiated instruction and has worked with local partners to facilitate curriculum development including the Buck Institute and Rubicon Atlas.

Responsibilities: The magnet STEM/curriculum planner will report directly to the magnet director to ensure coordination of all activities and events related to curriculum development (including curriculum mapping) and professional development. She will work in conjunction with the magnet resource teachers, and together they will spearhead the magnet STEM infused themed curriculum and professional development at the magnet schools. The magnet STEM/curriculum planner will work with each school's partners, magnet resource teachers, School Leadership Team (SLT), Inquiry Team and parent coordinators.

Qualifications of the Project Evaluator: American Education Solutions: American Educations Solutions (AES) will evaluate this project. Over the past 20 years, AES has evaluated 57 Magnet Schools Assistance Program grants. In addition, the AES team has partnered with the Education Alliance at Brown University and the SERVE Center at the University of North Carolina on 10 rigorous MSAP evaluations. For the 2010-2013 cycle AES partnered with the Nation-

al Center for Research on Evaluation, Standards, and Student Testing (CRESST) at UCLA on 5 rigorous MSAP evaluations, as well as on survey development and analysis. AES is continuing its partnership with CRESST for the current 2013-2016 cycle with another 5 rigorous MSAP evaluations and survey development and analysis. CRESST will perform the rigorous test score study described in the evaluation section of this proposal. The AES MSAP site visit team includes former school administrators with extensive magnet program experience. All have been teachers and have many years of evaluation experience. Two were assistant/associate superintendents responsible for all magnet projects in large districts, 4 were magnet school principals, 2 were magnet directors and one an Equity Assistance Center director. The duties and responsibilities of the evaluators are described in this proposal's evaluation section.

Qualifications of District 25 and District 30 Personnel, at No Cost to the Project

District 25 Superintendent: Danielle DiMango, Superintendent of District 25 since 2010, has worked in the NYC public schools for more than two decades as an Intermediate School Principal, Assistant Principal, Dean of Students, Staff Developer (New Teacher Program), and Language Arts Teacher, and as a Regional Director of Intervention Services for Secondary Schools for NYC DOE's Region 7. She has experience related to the development of curriculum and of various programs and services that support educational equity, such as the reinstatement of a one-to-one technology program in one school and the development of regional academic intervention services for all middle schools in Brooklyn South and Staten Island. She has been a Member of the Commissioner's Advisory Council (New York State Council of School Superintendents). She holds licenses as a NYS School Administrator and Supervisor, a NYS School District Administrator, and as a NYS and NYC English Teacher (grades 7-12). She has an M.A. in Secondary Education (English), and a B.A. in Legal Studies.

District 30 Superintendent: Dr. Philip A. Composto, Superintendent of District 30 since 2002, has almost 40 years of experience in the NYC public schools as an Intermediate School Principal, Supervisor of Special Education, Staff Developer for the Queens Region, and Teacher of Special Education Common Branch. He was Superintendent responsible for several MSAP projects, including most recently the District 30 magnet project in 2010 – 2013. He has also been a Senior Achievement Facilitator for the NYC DOE Inquiry Initiative, working with school teams to develop and implement research-based classroom- and school-level change strategies. He has taught graduate courses since 2000: Leadership for Diverse Populations (Queens College); and Teaching Middle School Learners in General and Inclusive Settings (St. John's University). He holds licenses as a New York State Nursery, Kindergarten and grades 1 through 6 Teacher, and as a NYC Educational Administrator, Special Education; Principal, Spe- cial Education; Principal, Junior High School; and Principal, High School. He is certified as a Mentor and Coach and as an Assessor for the NASSP. He has a Doctorate in Education (Instruc- tional Leadership), a professional diploma in School Administration, an M.A. in Special Educa- tion, and a B.A. in Elementary Education. He also attended the Harvard Graduate School of Ed- ucation's Principal's Center. He has won multiple awards for his educational leadership. **Qualifications of Magnet School Principals at No Cost to the Project**

Qualifications of Magnet School Principal of PS 92: Pasquale Baratta has worked in NYC public schools for 24 years and been a PS 92 administrator since 2003, including four years as Assistant Principal. He also served as testing coordinator, ESL/bilingual specialist, science specialist, and curriculum developer. And he has also been a classroom teacher (common branch, bilingual, science). He has a Professional Diploma in Administration and Supervisions, an M.A. in Bilingual Education, and a B.A. in Romance Languages.

Qualifications of Magnet School Principal of IS 145: Dr. Dolores Beckham has been a NYC public school educator for nearly 40 years as a Principal, Site Supervisor, Assistant Principal, NYC DOE Recruiter and Staff Developer, and Bilingual Spanish and Monolingual Teacher of History. She has been teaching graduate course in Bilingual Education at St. John's University for nearly a decade. In her 18 years as Principal at IS 145, she restructured the school into five distinct learning academies, implemented the school's former magnet programs, and developed and implemented various curriculum designs. She holds licenses as a NYS School District Administrator and NYS School District Supervisor and Administrator, and as a NYC Elementary, Secondary, and Intermediate Assistant Principal, Secondary and Intermediate Principal, Educational Administrator, and High School Social Studies Teacher, as well as a NYC Secondary Certificate in Social Studies. She has a Ph.D. in Educational Leadership, an M.A. in Supervision and Administration, an M.A. in Curriculum, Teaching and Bilingual Education, and a B.A. in History and Latin American Area Studies. Her most recent award for her educational leadership is the Chancellor Farina's Dual Language Model School Award.

Qualifications of Magnet School Principal of PS/MS 200: Kevin McAuliffe came to his position as Principal via the NYC Leadership Academy, an organization committed to equity, after his seven years as a strong, creative General Education Teacher. In his current position he has secured and managed a grant that multiplied technology resources in the building, as well as grant that added a music program at the school for the first time in a decade; and spearheaded school-wide support for A Shared Path to Success, NYC's reform aimed at meeting the needs of students with disabilities. As a classroom teacher, he introduced problem solving-based instruction to his school as part of the DOE Common Core Math pilot program and integrated the use of technology in the classroom through a Partnering with Our Digital Natives grant. He holds li-

censes as a NYS School Building Leader and in Childhood Education, Grades 1-6. He has a School Building Leader Certificate, an M.S. in the Science of Teaching, and a B.A.

Qualifications of Magnet School Principal of PS 210: Before Rebecca Lozada assumed her current position, she was Resident Principal at a dual language elementary school committed to graduating bi-literate, bilingual, and multicultural students, as well as a Staff Developer/Instructional Specialist/Teacher at another diverse elementary school. With 27 years in the NYC public schools, she has been an outstanding leader at PS 210: getting the highest rating, "Highly Effective," on the NYC DOE Principal Performance Review. She holds licenses as a NYS School Building Leader and School District Leader and certification in Bilingual Extension, Special Education, and Common Branches. She is a graduate of the NYC Leadership Academy. She is currently completing her Ph.D. in Educational Leadership and has a Certificate of Advanced Study—School Building Leader/School District Leader, an M.S. in Special Education/Bilingual Education, and a B.A. in Marketing Management/Education.

(d)(3) The Secretary determines the extent to which teachers who will provide instruction in participating magnet schools are qualified to implement the special curriculum of the magnet schools.

As recipients of previous magnet projects, Districts 25 and 30 already has a cadre of teachers who will bring their prior experience at one or more magnet schools to the current magnet project. All magnet classroom teachers and magnet resource teachers will be effective as described in the new Every Student Succeeds Act of 2015 (ESSA). That is to say, they will be teachers who meet NYS certification and licensure requirements, including any requirements for certification obtained through alternative routes to certification, or, with regard to special educa-

tion teachers, the qualifications described in section 612(a)(14)(C) of the Individuals with Disabilities Education Act (20 U.S.C. 1412(a)(14)(C). The vast majority of the classroom teachers in these schools are seasoned teachers (on average over 90%), having taught in the schools for many years. Moreover, many have experience in other magnet projects, making them highly qualified to implement special magnet curricula.

The magnet program will be facilitated in each school by magnet resource teachers, who will lead the school in standards-based education aligning curriculum, instruction and professional development to Common Core, state, and local standards; support the implementation of the magnet theme; provide leadership in infusing the magnet theme into all content areas; and work with the schools' instructional staff to integrate the magnet theme using innovative educational practices. The Districts 25/30 Consortium is requesting a total of 9.5 magnet resource teachers, between 2 and 3 at each of the 4 proposed magnet schools (depending on the size of the schools). **All magnet resource teachers will be required to have the following qualifications:** be effective as described in ESSA; demonstrate expertise in the theme of the magnet schools (e.g., subject area certification, professional organization certification); demonstrate experience in standards-based instruction and alignment of curriculum, instruction, professional development and assessment with Common Core, state, and local standards; have experience and/or graduate work related to the theme of the magnet school and STEM; have a minimum of three years successful experience in teaching students from varied social, economic, racial and ethnic backgrounds; have a knowledge of special needs of students incident to the reduction of minority group isolation; have a knowledge of and experience in Project Based Learning and in using *Understanding by Design* as an organizing principle for curriculum development and professional development and *Universal Design for Learning* as its central approach to personalizing instruc-

tion; have experience working with *Response to Intervention* and other intervention/enrichment strategies; have experience using varied approaches, strategies and materials to promote successful learning, including *Understanding Language* for ELLs; have demonstrated ability to work as a member of a committee or team with parents, teachers, and administrators.

Magnet resource teachers will be drawn from the pool of outstanding teachers who have expertise and experience related to each school's magnet particular theme and STEM and who are currently teaching at the magnet schools, at other Districts 25 and 30 schools, and, as necessary, at elementary and middle schools across the city. Many of these specialists will have taught in a school with a previously funded magnet program.

Responsibilities: The full-time magnet resource teachers assigned to each school will, in collaboration with the magnet STEM/curriculum planner and staff at each magnet site and its School Leadership Team: (1) work with each school's classroom teachers to use *Understanding by Design* as the basis for developing standards-driven and research-based STEM infused PBL curriculum and *Universal Design for Learning* and *Response to Intervention* to meet the needs of all students; (2) work, to refine intervention/enrichment strategies with school staff, other NYC DOE personnel; (3) work with curriculum and PD project partners; (4) participate in staff development and curriculum development workshops/activities related to magnet theme development and systemic reforms; and (5) facilitate the establishment of linkages, service contracts, and schedules for other collaborative agencies to provide services to the proposed magnet schools that are directly related to each school's magnet curriculum.

To determine personnel qualifications the Secretary considers experience and training in fields related to the objectives of the project, including the key personnel's knowledge of and experience in curriculum development and desegregation strategies

Knowledge of and Experience in Curriculum Development: As demonstrated by the descriptions of their experience presented earlier, the Districts 25 and District 30 Superintendents and magnet principals have extensive expertise in curriculum development and supporting equity in schools. A theme-based approach to instruction to improve academic achievement and promote diversity will be used in the Districts 25 and 30 magnet schools. A particular focus will be the development of transdisciplinary and integrated curriculum materials and activities that cut across content areas and enhance and enrich student learning. Districts 25 and 30 are ready to spearhead this next, crucial step in curriculum development.

Knowledge of and Experience in Desegregation Strategies: The Superintendents of Districts 25 and 30 and school principals, have knowledge and experience in desegregation strategies. As an example, the District 30 Superintendent was responsible for several MSAP projects, the most recent was the 2010-2013 District 30 magnet program. The Superintendents and principals have been teachers and supervisors in magnet schools and other highly minority group isolated schools and have worked with school staff to implement desegregation strategies. Districts 25 and 30 have been fortunate to receive Magnet Schools Assistance Program funding in former funding cycles. As a result of the MSAP grants and other recent desegregation efforts, key district and project personnel, as well as project school staff, have gained and continue to gain valuable knowledge and experience in all aspects of desegregation strategies.

(e) Quality of Project Evaluation

(1) The extent to which the methods of evaluation provide for examining the effectiveness of project implementation and strategies.

(2) The extent to which the methods of evaluation include the use of objective performance measures that are clearly related to the intended outcomes of the project and will produce quantitative and qualitative data to the extent possible.

(3) The extent to which the methods of evaluation will provide performance feedback and permit periodic assessment of progress toward achieving intended outcomes.

This evaluation, spanning the three years of this project, will assist school and district staffs to modify and improve project performance helping them achieve high levels of fidelity of implementation and attain project outcomes. The evaluation will also produce information needed by the United States Department of Education to properly evaluate project effectiveness as well as determine if project implementation strategies are in place and effective in insuring that all project activities are implemented as designed and on time, and that adequate progress is made toward the attainment of all project outcomes. Finally, the evaluation will insure that feedback structures and processes are in place so that formative report recommendations and findings are used by project and school staff and result in project improvement.

Data Collection: This evaluation will draw on a wide variety of data to provide substance and context for both formative and summative reports. Quantitative, extant data (e.g. enrollment information, student demographics and standardized test results) will be used in conjunction with

student and teacher surveys, as well as with qualitative data (e.g. interview and observation data, comprehensive education plans, curriculum materials, professional development records) to insure a thorough and balanced evaluation.

The evaluation contractor will develop a complete set of data collection instruments (including surveys, document requests, and walkthrough, observation and interview protocols) designed to provide sufficient information to address objectives and performance measures and supplement extant data. However, extant data will be used whenever possible to lessen the burden on school and project staff. The data to be collected will include: **Student academic achievement, demographic, enrollment and other data:** The contractor will collect standardized test score data (e.g., school and grade level and individual student reading, mathematics, science data) needed to address performance measures related to student academic achievement and perform the quasi-experimental test score analysis. Enrollment data disaggregated by race/ethnicity and socioeconomic status data collected by the district will indicate the extent to which each school and the project succeeds in meeting desegregation related performance measures including reducing minority group isolation and increasing socioeconomic integration. (A low income student is defined as a student from a family who has qualified for free or reduced price lunch, or is eligible for Human Resources Administration [HRA) benefits. The low income category also includes students who are enrolled in a Universal Meal School where students automatically qualify.)

Applicant pool, student selection and student enrollment data will help explain the extent to which the reduction in minority group isolation and increasing socioeconomic integration performance measures were attained and help determine how performance in this area can be improved.

Document requests: The contractor will request documentation from magnet school teachers and MSAP staff to help determine the quality and extent of MSAP implementation. Examples include: ► **descriptions of and dosage** (amount of program delivered) **for** units and courses that present the magnet theme to students; and student recruitment, teacher professional development, parent involvement and planning activities (including an implementation plan); ► **schedules** of school based magnet staff; ► comprehensive education plans. **Observation and interview data** will be collected, during three annual visits to each magnet school, by trained evaluators with extensive experience as magnet school practitioners. During each visit, the evaluator will conduct a walkthrough, observe lessons, and interview teachers, administrators, students and parents. The evaluators will develop an open-ended interview protocol to determine participants' perceptions of their schools and the contextual environment that surrounds their school and community. These semi-structured interviews will allow participants to reflect on their experiences in their school generally, with a particular focus on what works and what needs improvement.

Surveys will be administered annually to all teachers at each magnet and comparison school and a sample of students (one complete grade) at each magnet and comparison school. Comparison schools will be selected based on school size, grade span, and school-level student achievement and demographics. Drawing on its 20-year history of MSAP and regular and rigorous evaluations, American Education Solutions developed survey items and scales with its survey consultant, Dr. David Silver, a senior researcher at UCLA's CRESST Center, and currently, Dr. Jia Wang, a senior research scientist at CRESST. *These survey items are directly related to the purposes of the MSAP and the logic model, objectives and performance measures of this proposal*. Validated survey items and scales measure constructs including school climate, professional de-

velopment hours (formal, collaborative and coaching) and effectiveness, student engagement and motivation, student academic commitment and expectations, student and teacher perceptions of intergroup relations and magnet theme implementation, standards based instruction and systemic reform implementation and parent involvement, teacher insights of what works, what is missing, and areas of improvement, as well as magnet-specific professional development dosage.

Formative Evaluation: The evaluation contractor will aid in the continual improvement of the project through formative evaluation, an examination of implementation that returns information to project, school and district staff to help them improve program performance. Formative evaluation includes the study of program fidelity (the degree to which a program is implemented as designed) and reach (the proportion of the target group that participates). Components of fidelity include: ► adherence – the degree to which the program adheres to its goals, plans, activities, timeline; ► dosage – the amount of program delivered; ► quality – the quality of program activities and services; ► responsiveness of participants to program activities; ► program differentiation – unique features when compared to non-magnets.

Formative Evaluation Reporting: Data will be collected, as available, and analyzed, and recommendations will be discussed with the project director and school staff throughout the year. **Five formative evaluation reports** will be written by evaluators each school year: **Reduction of Minority Group Isolation (MGI) Report:** Demographic and enrollment data will be compared with applicant pool, student selection and other data from the previous school year and with performance measures. By November, discussions related to the attainment or partial attainment of performance measures related to the reduction of MGI will help the district and magnet schools modify recruitment strategies and activities to attain better results. Measures of fidelity include adherence to recruitment plans and student selection procedures; and dosage,

the "amount" of recruitment. Quality and responsiveness will be determined by changes in school enrollments, especially for entry grades, and the size and diversity of applicant pools. **Site Visit Reports** are opportunities to provide feedback based on data related to the development and implementation of the project. After each of three annual site visits, a report will be written by the site visitor and submitted within ten days. It will summarize the findings of the visit and include recommendations for improvement. Site visitors will discuss proposed recommendations with school and MSAP staff during each visit. **Documentation Reviews,** included in all three site visit reports, will summarize descriptive and quantitative data related to magnet curricula, systemic reforms, parent activities and professional development, and report on: adherence (e.g., activities implemented on schedule), dosage (e.g., the amount of time students, teachers and parents are exposed to grant activities such as magnet units and courses, professional development and parent activities), quality (e.g., peer reviews of magnet related units). The combined site visit report/documentation review summarizes how much progress has been made towards attaining performance measures especially those related to magnet theme and systemic reform (including improvement of curriculum and instruction) implementation (2.1, 3.1), professional development (5.1-5.2) and fidelity of implementation. The reports, distributed to and discussed with school staff three times each year, help them to understand if they are on track to attain the intended project outcomes, including performance measures and if not, why and how the project activities can be improved. **Survey Reports** will include item by item results for each school, summaries of survey construct results for each school, and, for years two and three, comparisons between current and the previous year's results. Trends (e.g., relationship between magnet implementation and student engagement and motivation, between professional development dosage and impact) are explored. Other formative evaluation strategies include:

Short Term Outcomes. Benchmarks are short term outcomes that indicate whether adequate progress is being made towards the attainment of annual performance measures. Most are derived from site visit report or survey items. Since surveys are administered in the spring of each year, these benchmarks, reported by the end of the school year, can help the project director make adjustments by the beginning of the following school year. Site visit items (e.g, professional development and curriculum dosage, quality indicators) are reported and reviewed with schools three times during each project year. The most critical benchmarks are included in the performance measure section which follows. The project director and evaluator can decide on additional benchmarks, derived from site visit or survey items, that could be helpful guides to one or more schools. Desegregation benchmarks are derived from applicant and enrollment data. The degree to which benchmarks are attained will be reported in the site visit and survey reports.

Implementation Strategies: Fidelity of implementation may be affected by the complexity of the project or intervention. Learning the program and each of its components through intensive professional development and receiving implementation support from project staff (e.g., coaching, demonstration lessons, resource support), colleagues (e.g., unit quality peer review, collaboration, intervisitations) and evaluators (e.g., site visit and other formative reports and feedback including progress on benchmarks) is essential and will occur as previously described. Having additional strategies to improve fidelity of implementation are important and include: **Planning:** Schools started planning their magnet themes. However, implementing a complex program needs additional planning. Therefore, every school, with the guidance of the project director, will create an implementation plan based on this proposal and its school level logic model. The process begins by revisiting and clearly explaining, to teachers and principals, project activities and why they will result in expected outcomes, the logic model and the theory of action so that

stakeholders understand what is being implemented and why. Although this was part of the initial planning process prior to submission, it is still an important part of pre-implementation planning. Using the grant application and logic model, school staffs will list and describe the activities to be implemented, the professional development for teachers that will support the implementation of these activities, the people and organizations who will provide the professional development and a timeline. They will also outline, at a minimum, all units for the year including unit content. This activity recognizes the best practice of planning the entire year prior to implementation, in sufficient detail, to enable a strong and complete implementation.

Peer review of unit quality: Each school will create, with the guidance of the project director and the STEM/curriculum planner, a unit quality rubric. All units must be reviewed to determine if they meet the quality criterion. Review sessions will include teachers' discussions of units. The rubric also provides a school-wide structure for inter-visitations and unit development.

Review of site visit reports, **its findings and recommendations**: Each school will develop a process for reviewing the site visit reports, discussing findings with staff and implementing recommendations. Fidelity of Implementation will be monitored and reported on during each site visit as will each school's implementation plan, peer review of units, review of the previous report and progress made on implementing recommendations. A similar review process will be implemented for the findings of the **surveys**.

The ultimate effectiveness of the implementation and implementation strategies will be determined by the extent to which project outcomes will be attained, including reduction in minority group and socioeconomic isolation and test score improvement, and statistically significant improvements in test scores for students attending magnet schools when compared with

carefully matched non-magnet school students (quasi-experimental analysis of test scores by the Center for Research on Evaluation, Standards, and Student Testing (CRESST) at UCLA.

Summative Evaluation and Reporting: The evaluator will determine the extent to which annual objectives and performance measures (medium term outcomes on the logic model) are attained. Data sources were described above. The evaluator will collect and analyze the data, prepare two annual performance reports (APRs) and one final report summarizing findings, and discuss the results with district and magnet school staffs. (For previous MSAP cycles, there were two versions of the APR each year. The APR was submitted in May to demonstrate progress made to date. The final APR, called the Ad Hoc Report, was submitted after the end of the project year--September 30.) The following section describes the annual performance measures (medium term outcomes), their relationship to each MSAP program purpose and to this project's logic model and how the evaluators will assess their attainment for the APRs (APR and Ad Hoc Report) and final report (e.g., indicators, measures of change, data collection methods, data sources and frequency of data collection). The most important benchmarks associated with each performance measure are also described. Long term outcomes on the logic model are the year 3 performance measures and represent the outcomes for the entire project period.

Project Outcomes: This proposal's outcomes are aligned with the six purposes of the Magnet Schools Assistance Program (MSAP) and the logic model for this project. A set of objectives and performance measures follow the Program Purpose and logic model activity they address. The Benchmarks are short term outcomes that indicate if adequate progress is being made towards the attainment of annual performance measures.

Program Purpose 1: *The elimination, reduction, or prevention of minority group isolation in … schools with substantial portions of minority students….* ***Logic Model Activity:*** *Desegregation –*

Student recruitment, application and selection activities; ***Benchmark****: for applicant pool - proportion of isolated students are 10 percentage points less than actual enrollment for each school.*

All proposed magnet schools will reduce minority group isolation and increase socioeconomic integration by decreasing the percentage of Hispanic or Black students and increasing the percentage of middle class students. The percentage of Hispanic or Black students in each school is greater than the district-wide average of Hispanic or Black students in PreK through eight (the grades served by the project) in their respective districts (4.8% Blacks and 24.6% Hispanices in District 25 and 54.7% Hispanics in District 30). The proportion of low income students at each school is greater than the district average in their respective districts (69.9% in District 15 and 82.1% in District 30). The district-wide PreK to grade 8 enrollment and projections are on Table 1: Enrollment Data-LEA Level.)

Objective 1. Minority group and socioeconomic isolation will be reduced at the proposed magnet schools. (This objective addresses MSAP Performance Measure a.)

Performance Measure 1.1-1.4: By October 1 of each project year, at each magnet school, approved enrollment targets for each racial/ethnic group (see Table 3: Enrollment Data-Magnet Schools) will be attained by reducing the isolation of Hispanic students in PS/MS 200 and Black students in PS 201 in District 25 and the isolation of Hispanic students in PS 92 and IS 145 in District 30 (using 2015-16 as the baseline) by at least 2 percentage points by year 1, 4 percentage points by year 2 and 6 percentage points by year 3. The schools and their 2015-16 enrollments of the targeted isolated groups (Hispanic or Black) and the schools' low income percentages are: **1.1 PS/MS 200** District 25 (PreK-8) (46.4% Hispanic, Low Income: 71.7%). **1.2 PS 201** District 25 (PreK–5) (40.6% Black, Low Income: 100%) **1.3 PS 92** District 30 (PreK-5) (95.8**%** Hispanic, Low Income: 100%); **1.4 ► IS 145** District 30 (6-8) (89.0% Hispanic, Low Income: 94.3%).

1.5: By October 1 of each project year, for each magnet school, the proportion of low income students will be reduced by at least 4 percentage points compared with the previous year. (A low income student is defined as a student from a family who has qualified for free or reduced price lunch, or is eligible for Human Resources Administration [HRA) benefits. The low income category also includes students who are enrolled in a Universal Meal School where students automatically qualify.)

1.6 For each project year, each magnet school will receive at least 65 applications.

Assessment: School enrollment data, disaggregated by race/ethnicity and socioeconomic status will help determine the degree of attainment of 1.1-1.5. Each year (October 1), the percentage of students in the isolated racial/ethnic group and low income students enrolled in each school will decrease. Baselines are 2015-16 school enrollments, i.e., applicant pool (applications for magnet school seats) and student selection data (students who applied and were selected) will determine if 1.7 was attained and explore how outcomes can be improved for all measures.

Purpose 2: *To develop, implement and expand magnet school programs that will assist LEAs achieve systemic reforms, and provide all students the opportunity to meet challenging State academic standards.* ***Logic Model Activity:*** *Improve Curriculum, Instruction & Student Academic Supports;* ***Benchmark****: 85% of teachers at each school agree that a moderate or a great deal of emphasis (as opposed to no or little emphasis) was placed on (a) alignment of curriculum content and assessments with CCSS and state standards; (b) Designing professional development linked to CCSS state standards; (c) data based decision making; (d) RTi. (e) At least 85% of teachers will teach content or skills using structured small group activities daily or weekly. (Survey results.)* The implementation of systemic reforms and improved curricula, instruction and student academic supports will be facilitated and supported by the project staffs. Classroom

teachers and magnet resource specialists will reexamine and revise or write improved units in core academic subjects during common planning time during school hours, supplemented with after school and summer sessions. **Objective 2:** All students will receive instruction that includes their school's systemic reforms (e.g. PBL, SEM, and RtI) and magnet themes in units and courses aligned with CCSS and State standards.

Performance Measures: **2.1** By the end of each project year, at each magnet school, at least 70% (year 1), 85% (year 2) and 100% (year 3) of core academic magnet units will meet school and project quality criteria determined during peer reviews using a unit quality rubric.

Assessment: Unit quality rubrics will be designed by each school with the assistance of the magnet STEM/curriculum planner. Scores meeting quality review standards will be determined. Reviews will occur 2-4 times per year as determined by each school's planning committee. Since this is a peer review process, teachers will review each other's units. Magnet resource specialists will facilitate. Baseline is zero for 2015-16. The percent of units meeting quality criteria increases each year.

Purpose 3: *The development, design and expansion of innovative educational methods and practices that promote diversity and increase choices in public elementary and secondary schools ….*

Logic Model Activity: *Magnet Theme Integration*; ***Benchmark****: (a) Dosage for implemented and planned units attains the target number of hours for project year. (Checked during each site visit.) (b) See Benchmark for Project Purpose 2. (c) Student surveys indicate that engagement, motivation, academic commitment and interest in magnet theme increase each year (year 1 is baseline). 90% of students are interested in magnet theme and find it challenging.* Magnet Theme Integration, Improvement of Curriculum and Instruction and intensive Professional Development

will produce Quality Magnet Curriculum and Instruction which will increase student diversity and choice because the curricula are not offered at other schools.

Objective 3. All students, at each magnet school, will receive magnet theme instruction.

Performance Measures: **3.1** By the end of each project year, all students, at each magnet school, will receive magnet theme instruction coordinated with or including systemic reforms for at least 3 (year 1), 6 (year 2) and 10 (year 3) hours per week.

Assessment: Success will be determined, by the evaluators, through unit plan analysis and confirmed with interviews, and walkthroughs (3 times per year) and surveys. Unit summaries are submitted by each school 3 times per year. Entire units are made available by school (magnet resource specialists) to evaluators (on-line access) on a continuous basis. The dosage is the average number of hours that each student receives magnet theme related instruction through discrete (magnet theme) classes and integrated units per week. Dosage is reviewed throughout each project year to determine if the schools are on target for reaching curriculum goals. The baseline is zero for 2015-16. The number of hours will increase each year to meet the target.

Program Purpose 4: *Courses of instruction in magnet schools that will substantially strengthen the knowledge of academic subjects and the attainment of … career, technological and professional skills of students...* ***Logic Model Activities:*** *All activities.* ***Benchmarks****: See Benchmark for Project Purposes 2, 3, 5 and 6.* At the elementary and middle school grades, English language arts and mathematics performance is evaluated based on New York State ELA and math assessments in grades 3 through 8. Similarly, at the elementary and middle school grades, science performance is evaluated based on the 4th and 8th grade New York State Science Assessments. For each school in New York State, the total population and each student subgroup is assigned a Performance Index (a value from 0 to 200) for English language arts, math-

ematics, and science. These performance indices are calculations based on the number of students at each of four performance levels (Basic, Basic Proficient, Proficient, and Advanced) for the relevant assessment. New York also creates EAMOs (Effective Annual Measurable Objectives) which serve as targets for what Performance Index the total population of a school and each of its subgroups need to reach in English language arts, mathematics, and science. EAMOs are set for the "All Students" group and for each student subgroup relevant to a school's accountability status. These are Asian; Black/African-American; Hispanic; American Indian/Alaskan Native; Native Hawaiian/Other Pacific Islander; White; Economically Disadvantaged, Students with Disabilities, and Students with Limited English Proficiency. If an EAMO is not attained, a subgroup or a school can still meet the annual improvement target by attaining the Safe Harbor criterion: a 10% improvement year-to-year improvement the Performance Index scored by the school/subgroup.

Objective 4: (a) By the end of the project period, for each magnet school, EAMOs (Effective Annual Measurable Objectives) or Safe Harbor will be attained for all students and for all student subgroups. (b) Each year, more students will reach proficiency in reading, math, and science.

Performance Measures:

4.1: ELA EAMOs or Safe Harbor criteria for the total population and for each subgroup of students will be attained by: one magnet school by the end of project year 1; three magnet schools by the end of project year 2; and all five magnet schools by the end of project year 3.

4.2: Mathematics EAMOs or Safe Harbor criteria for the total population and for each subgroup of students will be attained by: one magnet school by the end of project year 1; three magnet schools by the end of project year 2; and all five magnet schools by the end of project year 3.

4.3: Science EAMOs or Safe Harbor criteria for the total population and for each subgroup of students will be attained by: one magnet school by the end of project year 1; three magnet schools by the end of project year 2; and all five magnet schools by the end of project year 3.

The following measures (4.4 & 4.5) address GPRA (U.S. Department of Education) Performance Measures (b and c): *The percentage of students from major racial and ethnic groups …who score proficient or above on State assessments in reading/language arts and mathematics.*

4.4: By the end of each project year, at each magnet school, the percentage of "All Students", students from major racial and ethnic subgroups, and low income students who score proficient or above for ELA will increase when compared with the previous year.

4.5: By the end of each project year, at each magnet school, the percentage of "All Students", students from major racial and ethnic subgroups, and low income students who score proficient or above for Mathematics will increase when compared with the previous year.

4.6: By the end of the project period, 75% of students at each magnet school will develop mastery of the magnet curriculum, as determined by project based assessments scored by rubrics.

4.7: By the end of the third year of the grant (September 30, 2018), in at least four of the five project schools, students (total tested population) will have higher test scores than carefully matched students attending non-magnet schools in at least one subject area tested by New York State (ELA, mathematics, science). These results will be statistically significant.

4.8: By the end of the third year of the grant (September 30, 2018), in all five project schools, students in two or more of the tested subgroups (e.g., grade, a racial/ethnic group, low income students) will have higher test scores than carefully matched students attending non-magnet schools in at least one subject area tested by New York State, (ELA, mathematics, science). These results will be statistically significant.

Assessment: All students are tested in April of each school year. Data is analyzed by the State Education Department and made available to school districts. This data will be presented in the Annual Performance Reports in tabular form, highlighting the performance targets and how each magnet school – both in aggregate and by subgroups – performed in relation to these targets. Baselines are 2015 scores and indexes. Project based assessments (performance measure 4.6) will be developed in year 1 for each grade by the magnet resource specialists and classroom teachers with the support of the magnet STEM/curriculum planner. Rubrics will be used in years 2 and 3 by teachers with a frequency to be determined by school planning team and be approved by the magnet project director. The baseline is zero for 2015-16 and will increase each year.

PM 4.7-4.8 will be determined through a quasi-experimental analysis of New York State assessment (ELA, math, and science) scores. The study will meet the What Works Clearinghouse design standards for quasi-experimental studies. The study will be performed by UCLA's Center for Research on Evaluation, Standards, and Student Testing (CRESST). Dr. Joan Herman will be the principal investigator and Dr. Jia Wang will be the co-principal investigator and project director. It is expected that there will be significantly higher scores in math at PS 201 for grades 4 and 5, the grades that receive the professional development described in competitive preference priority 5 and significantly higher test scores in all tested areas, for all project schools, as described in the performance measures 4.7 and 4.8.

Purpose 5: *Improvement of the capacity of LEAs, including through professional development, to continue operating magnet schools at a high performance level after Federal funding…is terminated.* ***Logic Model Activities:*** *Professional Development (PD);* ***Benchmarks****: (a) PD supports all grant activities, uses expert presenters and a variety of delivery methods. (b) The sum of annual implemented and planned PD dosage attains target. (a and b checked during each site*

visit.) (c)At least 85% of teachers will agree with these survey items related to PD: (i) helped me integrate the magnet theme into lessons; (ii) deepened my content knowledge; (iii) helped me better maintain student engagement; (iv) I use what I learned from PD in my classroom; **Objective 5.** Provide professional development related to Improvement of Curriculum, Instruction and magnet theme development and integration.

Performance Measures 5: By the end of each project year, at each magnet school, teachers will receive at least 50 hours of professional development (e.g., workshops, courses, coaching) in each of the following areas: **5.1** directly related to the improvement of curriculum and instruction including the development and implementation of the systemic reforms listed in the comprehensive education plan; **5.2** directly related to the development/integration of the magnet theme.

Other performance measures related to capacity building include: (2.1, 3.1) development and implementation of systemic reforms and magnet theme units and courses.

Assessment: Magnet resource specialists will collect professional development (PD) data including the type of training, the number of hours provided and the number of teachers involved and summarize it as it occurs and checked three times per year by the evaluator and project director. Attendance sheets and data, agendas, workshop materials and magnet resource specialist logs and schedules will be available at each school and checked by the project director. Similar information will be submitted for planned PD. The indicator is the number of hours of professional development per teacher per year. The target is 50 hours per teacher each year for each type of PD. PD will include workshop sessions, follow-up coaching (by magnet resource teachers), and teacher collaboration (e.g., PLCs, intervisitations). Quality will be determined through survey analysis, interviews and class observations. (Previously discussed in this section.) The 2015-16 baseline is zero. Each year, targets will be met and/or number of hours will increase to target.

Purpose 6: Ensuring that all students enrolled in the magnet school programs have equitable access to high quality education that will enable the students to succeed academically and continue with postsecondary education or employment. ***Logic Model Activities:*** *Parent Involvement and all other logic model activities;* ***Benchmarks****: The degree to which: (a) parent activities described in the proposal are being implemented; (b) all classes reflect the racial/ethnic composition of the school. (Items a and b be determined during each site visit.)* **Objective 6a:** All project school students will have equitable access to high quality education. **Performance Measure 6.1** By the end each project year, for each magnet school, at least 70% (yr. 1), 75% (yr. 2) and 80% (yr. 3) of classes (elementary grades) and STEM classes (middle grades), will reflect their grade's enrollment for each racial/ethnic group (and gender for STEM classes) by ±15 percentage points. **Assessment:** Success will be determined by analysis of class enrollments disaggregated by race/ethnicity and gender. Please see assessment for measures 1.1- 1.6. Baselines are 2015-16 enrollments. The % of classes meeting the criteria increase each year.

Parent involvement also promotes equitable access to high quality education for all students. **Objective 6b:** There will be an increase in parent participation at each magnet school. **Performance Measure 6.2** By the end each project year, for each magnet school, there will be an increase (compared with the previous year) in the numbers of parents who participate in school activities. **Assessment:** Workshop materials, attendance records and parent interviews will determine parent participation and satisfaction. They will be collected by the magnet resource specialists as sessions occur and summarized and submitted to evaluators and the project director three times per year. The baseline year will be 2016-17. There will be an increase in the number of parents involved in school activities for years two and three.

Annual Evaluation Schedule: ► Initial meeting with project and district staff (Week 1); ► Refine data collection instruments and plan; refine analysis plan; (Weeks 1-3); Collect data (Throughout year): Enrollment data (Week 6); Documents collected (e.g. units integrated with magnet theme - Weeks 14, 28, 49); Site visits including interviews and observations (Weeks 15, 29, 50); Site Visit-Document Review Reports (Weeks 17, 31, 52); applicant pool data (Week 31); Dosage data (ongoing); Surveys administered (Week 33-35); Survey results reported (Week 40); ► Formative evaluation including discussion of recommendations (Weeks 3-50); MGI Report (Week 9); MGI/Applicant Pool Update (Week 31); ► Analyze and process summative data (Weeks 30-32 and 50-52); ► Prepare Annual Performance Report and Ad Hoc Summative Report (Weeks 30-32 and 50-52); ► Submit APR and Ad Hoc reports to school District (Weeks 33 and 52). Week 1 is the week the project begins each year. For the 2013-16 MSAP cycle, the project years were from October 1 through September 30.

Rigorous Evaluation of Magnet School Assistance Program The rigorous evaluation design proposed below (please see appendix for a more detailed version) will be carried out by researchers at UCLA's Center for Research on Evaluation, Standards, and Student Testing (CRESST). The goal of this design is to measure MSAP impact on student academic achievement with the statistical rigor of a high-quality quasi-experimental design, but to do so with attention to limitations of available data and sample sizes, and to do it on a scale that is reasonable within the current funding structure. Specifically, we examine two broad questions: (1) How did students attending target MSAP schools perform on state tests in relation to matched students at comparison schools in the same district? (2) How did *different subgroups* of students attending these MSAP schools perform in relation to matched students at comparison schools in the same district?

This evaluation strives to bolster the current body of research with instrumentation and analytic methodology aligned directly with the priorities and selection criteria of the Magnet Schools Assistance Program. We will select comparison schools within the district based on how closely they match the characteristics of MSAP supported schools in the year prior to magnet implementation using hierarchical cluster analysis. Specifically, the comparison school selection will take into consideration the grade span of the school, school size based on enrollment, school racial composition (i.e., percentage of Black and Hispanic students), and the percentages of ELL students and NSLP participants, respectively.

To identify comparison students, the research team will first restrict the pool of MSAP and comparison students to those who had achievement outcomes for each outcome year and may also limit the students to be at the same MSAP or comparison schools for a period of time. A covariate balancing propensity score will then be computed for the eligible comparison students. Comparison students will be matched to MSAP students with similar propensity scores using a technique known as radius matching (Huber, Lechner, & Wunsch, 2010).

Our research will examine the effect of MSAP implementation by comparing outcomes of students in MSAP schools to the counterfactual condition of how they would have fared if they had not been a part of the MSAP program. This effect is known in the literature as the average treatment effect on the treated (ATT). We will use regression analysis to examine this effect for each student's achievement outcomes. Specifically, we will examine the effect of prior student achievement on each student's achievement outcome (i.e., standardized tests) by controlling for prior achievement in both the matching model and the analysis model, which increases the robustness of the estimates. The average ATT effect is determined from the size and direction of the magnet effect coefficient. A counterfactual estimate can then be obtained by

subtracting the ATT effect from the average observed score of an MSAP population in an outcome year. This counterfactual represents an estimate of how these students may have fared if they had not been a part of the MSAP program and had instead attended a control school.

The combination of the rigorous evaluation described above with data from surveys developed by CRESST and AES, and the evaluation site visits and documentation and data reviews by AES provides districts with additional insight into the extent and quality of their MSAP implementation as well as the value the MSAP program has added to its schools.