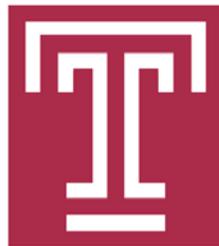


# TEMPLE TEACHER RESIDENCY PROGRAM:

**A Proposal for the Teacher Quality Partnership Grant  
of the  
United States Department of Education  
Office of Innovation and Improvement  
CFDA: 84.336S**

**SUBMITTED BY:**

TEMPLE UNIVERSITY COLLEGE OF EDUCATION  
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**I. COMPETITIVE PREFERENCE PRIORITY 1:  
PROMOTING STEM EDUCATION**

The partnership represented in this application – the College of Education at Temple University, in collaboration with the College of Engineering, College of Science and Technology, and the School District of Philadelphia (SDP), including 5 district-managed schools and 3 charter schools in the Philadelphia area – propose a teacher residency program for the high-quality preparation of middle-grades mathematics and science teachers. Graduates of the program will have earned their Master of Education (M.Ed.), a teacher certification in Middle-Grades (4<sup>th</sup>-8<sup>th</sup>), and an optional certification in Special Education.

In alignment with the objectives of Competitive Preference Priority 1 (CPP1), our program recognizes the importance of promoting science, technology, engineering, and mathematics (STEM) education, not only through higher-quality teacher preparation, but through more targeted recruitment, stronger professional support, and inclusion of underrepresented populations. To address these points of priority, the proposed program has developed a multi-faceted approach that supports STEM education across several contexts.

*Improving Teacher Preparation and Professional Development*

SDP has expressed a need for high-quality middle-school math and science teachers. Reports on schools in Philadelphia show sharp drop-offs in the percentage of students earning *Proficient* or *Advanced* scores on the 2012 Pennsylvania System of School Assessment (PSSA) test, with a drop from 52.4% to 37.5% in math scores between 8<sup>th</sup> and 11<sup>th</sup> grade. High-school students are struggling, in part, because they are inadequately prepared for the rigors of secondary education. By the time a student reaches this level, it is difficult to catch up and learn the analytical tools and skills needed for success in high-school, college, and career. The cumulative impact of a lack of foundational skills can also be seen in 2012 PSSA science scores of students

with a consistent drop in proficiency levels at 4<sup>th</sup>, 8<sup>th</sup>, and 11<sup>th</sup> grade from 82.3% to 59.7% to 41.8%. Middle-grades STEM education is more important than ever.

Due to a current lack of qualified middle-grades STEM teachers (particularly those with special education certification), SDP must solicit teachers from other content areas and grades to fill these vacancies, which requires teachers to work outside their expertise area and negatively impacts teacher experience and classroom quality. Our proposed program will remedy this by training teachers to specifically fill the current gap in middle-grades STEM education.

In accordance with the note for CPP1, and to ensure that the Temple Teaching Residency (TTR) produces teachers with content knowledge and the skills to transfer that knowledge to a classroom, we will admit only students with bachelor's degrees in fields related to mathematics, science, and engineering, and build instructional practices on top of their expertise.

Due to its focus on STEM teacher preparation, TTR will be able to utilize a highly-targeted, discipline-specific curriculum and training approach. During the pre-residency summer and residency year, student coursework will examine literacy methods, proven instructional practices and strategies to support critical and creative thinking such as questioning techniques, adaptive classroom management, and inquiry- and design-based approaches to science teaching – broader skills that are essential to strong STEM instruction. This curriculum will emphasize the use of hands-on learning experiences, and will tightly integrate with the year-long clinical experience in the host-classroom through coursework that pushes the student to incorporate new knowledge and practices into the residency classroom. This immersive experience in a high-need subject within a high-need school will allow residents to work closely with their mentor-teacher and will acculturate them to the high demands of the middle-grades math and science classroom while providing them ongoing support and feedback. We envision a reciprocal learning opportunity in

these classrooms in which the residents will learn from the veteran’s experience while introducing the experienced teacher to cutting-edge classroom practices.

In accordance with CPP1 and to support residency graduates as they transition into the role of novice teachers, our partnership will implement an induction program that will offer ongoing training and professional development opportunities to mentor-teachers and TTR graduates. Mentors will be supported through a training program that includes a Summer Institute and ongoing cohort trainings. The Summer Institute will offer mentors time to reflect on their course objectives and will introduce leadership protocols that will inform their relationship with residents. During our initial planning year, we will work with Urban Teacher Residency United (UTRU) to further design ongoing professional development for mentors.

To support residents, the induction program will last for the first two years of a teacher’s employment and will consist of: 1) 1:1 individualized sessions with mentor-coaches (successful mentor-teachers from the previous year who will continue supporting the same Resident through a three-year cycle); 2) monthly cohort meetings where TTR graduates will receive targeted professional development focusing on identified needs; and 3) Sustained citizenship within the education network, Edmodo.

### *Targeting Underrepresented Populations*

The proposed program aims to increase teaching opportunities for underrepresented populations in STEM education. Currently, SDP has a need – not only for middle-grades STEM instruction – but for teachers who are more representative of the populations in their classroom. TTR will address this by using Temple’s already-successful diversity initiatives at the undergraduate level to target recruits from two of our STEM-focused Colleges, who better reflect the populations they will teach. Currently, approximately 54% of the graduates of the College of

Science and Technology and 48% of and the College of Engineering are people of color, vs. 34% within SDP.

Furthermore, our residents (who will be highly talented, highly qualified, and highly ambitious) will be encouraged to earn their certification in Special Ed.

## **II. COMPETITIVE PREFERENCE 2**

### **IMPLEMENTING COLLEGE- AND CAREER-READY STANDARDS**

The School District of Philadelphia (SDP), the partnering high-need LEA in this proposal, has already begun to integrate the Pennsylvania Common Core Standards into their curriculum. TTR will support this transition, using the unique environment of the residency to reinforce PA Core Standards best practices. TTR coursework will incorporate these standards by training residents to use frequent assessments of student learning to support data-driven instructional methods and to continually monitor student progress against established standards – relatively new and essential skillsets that residents will share with their mentor-teachers. The tight alignment of TTR coursework with the classroom experience will allow the mentor-resident team to track student progress against standards throughout the year and build lesson plans for identified learning gaps.

Our program will utilize the full-year clinical-experience to train the resident on the instructional shifts required by PA Core Standards and to share these strategies with the mentor-teacher as part of a reciprocal learning experience. This will help to grow the classrooms of both veterans and novice teachers, and will ensure that, once the residency concludes, the mentors will be better equipped to handle the challenges of shifting curriculum standards.

Finally, because TTR will operate as a new strand of an existing 4 + 1 accelerated teacher-preparation program, we will use the curriculum developed for the TTR to ensure all of our teacher candidates are able to meet the expectations of the PA Core Standards.

### **III. TEMPLE TEACHER RESIDENCY PROGRAM (TTR)**

#### **INTRODUCTION**

The College of Education at Temple University, in collaboration with the College of Engineering, College of Science and Technology, and the School District of Philadelphia (SDP) which includes a group of district-managed schools as well as charters managed by American Paradigm Schools (APS), proposes to develop a residency model for the preparation of middle-grades math and science teachers. The Temple Teacher Residency (TTR) will recruit cohorts of undergraduate content majors in mathematics, science, and engineering through a fifth year, contiguous graduate residency program that will prepare them for STEM teaching and will culminate with a Master of Education (M.Ed.), Teacher Certification in Middle Grades (4<sup>th</sup> – 8<sup>th</sup>), as well as an optional endorsement in Special Education within 18 months. This program is designed to meet the SDP’s need for highly-qualified teachers in these areas and at these grade levels. The program, which draws on considerable research and experience, will serve as a demonstration project for programs across the College of Education, and will strengthen Temple’s capacity to provide high-quality teacher preparation. It will also build the instructional and leadership capacity within district-managed schools and charters through two intentional and connected strategies: 1) The preparation and support of 53 new math and science teachers over five years; and 2) The support and professional development of 45-50 in-service teachers who will serve as mentors and who will come together as a cohort representative of both district-managed schools and charters – to share these practices more broadly across the schools.

The following sections of the Project Narrative will discuss: 1) the significance of the proposed project and its efforts to build capacity to provide high-quality teachers in places of high-need, enact system change, and address the current needs of the SDP and our school partners; 2) TTR design, including the integration of theory and practice in its curriculum and

clinical experience, its recruitment and selection process, its support for mentor teachers, and its post-graduate activities; 3) the project’s management plan and the unique collaboration that will ensure its success; and 4) TTR’s evaluation plan, including metrics of success and strategies for incorporating feedback to inform improvements.

### **A. SIGNIFICANCE OF TEMPLE TEACHER RESIDENCY PROGRAM**

#### *Addressing Areas of High Need*

In the most recent administration of the Pennsylvania System of Standardized Assessment, 45% of the SDP’s 4<sup>th</sup> graders and 48% of its 8<sup>th</sup> graders scored at – or below – a *Basic* level in mathematics, far below the average percentages of the state. The 2009 National Assessment of Education Progress (NAEP) Trial Urban District Assessment paints a grim picture within science classrooms as well with reports that 4<sup>th</sup> graders in 14 of 17 participating districts in the study scored lower than the national average in science, with Philadelphia’s students ranked fourth from the bottom. Similarly, 8<sup>th</sup> graders in 16 of the 17 participating districts scored lower than the national average in science, with Philadelphia’s 8<sup>th</sup> graders ranked third from the bottom.

This current emergency within Philadelphia schools demands an approach that is not just targeted to the specific needs of a high-need district and its schools, but is also broadly impactful so that improvements made in the microcosm of a TTR classroom may spread across the entire ecosystem of the school, its district, its state, and beyond. If we are to improve STEM education in urban schools, we must improve STEM teaching.

#### *Building Capacity through Resident and Mentor Training*

Pennsylvania certifies more than 15,000 new teachers (Instructional I Certificates) a year, making it the nation’s fourth largest preparer of new teachers. Despite this, teacher shortages persist within math, science, and special education areas implying that too few teachers are

prepared for the organizational and instructional challenges of urban school contexts (U.S. Dept. of Education, 2013).

TTR aims to build the capacity for its partnership to provide more and more-qualified STEM teachers to meet the needs of the district, and to expand its support services so that these improvements will spread across the local education system. Our program will build upon the pathways already in place to create a teacher-residency program that will recruit students from STEM-related concentrations such as mathematics, science, and engineering and build rigorous pedagogical training on top of their content expertise in order to fully prepare them for the challenges of incorporating PA Core Standards into high-need classrooms. Over five years, we will train and induct 53 new middle-grades STEM teachers and support an equal number of veteran teachers through their development as mentors. By the end of the award period, TTR will have established a sustainable pipeline for sending excellent teachers into Philadelphia middle schools and ongoing lines of communication for sharing best-practices across schools.

*Spreading Change across the District School System*

Our partnership uniquely encompasses a diverse group of district schools and charters. This diversity is reflective of Philadelphia’s “Great Schools Compact,” a joint agreement between educational leaders and school providers to strive towards the unifying goal of offering high-performing school options to every student, irrespective of school type. Building from this, our approach will be a highly collaborative one that utilizes – rather than isolates – its array of educational settings.

The Temple College of Education already has a strong relationship with many of these district-managed schools and charters. In 2009, the college launched an undergraduate middle-grades teacher preparation program that has maintained its partnership with Philadelphia

district-managed and charter schools. This has allowed us to expose students to urban classrooms at the range of grade levels required by the state and to successfully place graduates within local schools. To build on our current partnership, the TTR curriculum will offer residents exposure to a wide variety of educational settings – across different types of schools – while its emphasis on collaboration between cohorts of residents and mentors will spread best-practices across the system. Through intentional partnerships with district-managed schools and charters, the TTR will be able to broaden the educational perspectives and experiences of its residents and mentors – a strategy that will directly impact the teaching quality of all participants, and will allow for open dialogues and relationships across teacher populations that do not typically intersect. By nurturing these relationships, the best-practices and collaborative efforts of TTR will extend across the wider educational system.

*Spreading Change across the University*

As discussed in the Program Design, TTR will serve as one strand of Temple’s newly formed 4 + 1 accelerated undergraduate/graduate teacher preparation program. Our goal is to recruit the strongest STEM candidates, offer them rigorous, targeted, and immersive training, and ultimately introduce them into schools where we may support them as agents of educational change. TTR will serve as a model program for intensive teacher-preparation and support and will inform the university’s other preparation programs.

In 2007, recognizing the need for highly-qualified middle-grades STEM teachers, Temple initiated  $e=mc^2$ : Educating Middle-grades Teachers for Challenging Contexts, a teacher preparation program designed to recruit career-changers from STEM fields into a middle-grade teacher certification program. Best practices and innovations developed and implemented through this program include a focus on middle-grades teacher preparation, training in urban

schools, and targeted induction. Taking these innovations, but recognizing the difficulty of recruiting career changers, Temple evolved the program into a new 4 +1 accelerated undergraduate/graduate teacher preparation programs, which can leverage the curriculum and program design of e=mc<sup>2</sup> but also utilize the tremendous opportunities available through using the STEM colleges as feeders for the 4+1 program. As discussed in the program design, this 4 + 1 program will serve as TTR's recruitment feeder and will increase Temple's capacity for preparing high-quality middle-grades teachers in STEM and Special Education areas. TTR will continue to build on this commitment to capturing best practices to drive broad and deep improvements within the university's system.

To ensure the curriculum prepares teachers to effectively teach STEM content, the Dean of the College of Science and Technology and the Dean of Engineering have agreed to serve in advisory capacities to TTR, and the College of Education will extend their guidance to inform other preparation programs.

### *Meeting Current Shortages*

A major concern, expressed by our partnering district schools and charters is that middle-grades teachers lack content expertise. Students who enter high-school without the foundational knowledge and skills struggle to meet new academic standards for high-school, college, and career – an unproductive cycle that overburdens high-school teachers and disempowers students.

Further, as articulated in Competitive Preference 1, our partnership's emphasis on middle-grades, STEM-related classrooms is rooted in the fact that although the Philadelphia metropolitan area is home to more than 80 colleges and universities, as well as numerous health care, science and technology companies, students from the Philadelphia public school system are underrepresented within the STEM fields. If we are to increase the number of Philadelphia

students entering STEM fields, and set them up for success, it is crucial to focus on grades 4-8 because mathematics and science courses in middle grades are often gatekeepers to students' entry into STEM-related careers (Tytler & Osborne, 2012).

At the end of the proposed grant term, the Temple Teacher Residency will have impacted middle-school science and math classrooms, as measured by increased student achievement levels in these areas within schools that have hosted or hired residents. We will achieve this through intentional strategies that focus on the preparation of highly effective residents, the training and support of mentor-teachers, and ongoing best-practice sharing across STEM teachers at participating schools. The TTR will inform the evolution of all of Temple's teacher preparation programs towards the needs of the 21<sup>st</sup> century classroom.

## **B. PROGRAM DESIGN**

This section discusses how the Temple University Teacher Residency (TTR) will meet the General Program and Absolute Priority 2 requirements in the implementation of a teacher residency program for prospective middle-grades educators of STEM subjects. Specifically, this section will elaborate on: 1) The strong theory driving our efforts; 2) The details of the residency program, including its pedagogical framework, curriculum and training, mentorship, induction approach, service obligation, and application process; 3) The collaboration efforts between the fiscal agent (Temple University), partnering district institution (SDP), charter operators (APS) within the SDP, and key personnel in the local educational community to create an effective residency program; and 4) The network of support and resources that will ensure the program's success as well as its sustainability.

Consistent with Absolute Priority 2 and the recommendations of the Urban Teacher Residency United (UTRU), as well as in as collaboration with SDP, APS, and Temple faculty

about specific needs and resources within the current system, we have developed a program that will, in accordance with HEA 201, increase student achievement, improve the quality of the current and future teaching force, and ensure that graduates leave the program with the necessary skills and competence to lead a successful classroom. Our proposed program design includes:

- Innovative clinical experiences and curriculum including course content and sequencing that emphasizes specific, evidence-based strategies for successful teaching of middle-grades math and science classes in high-needs schools, as well as opportunities for observation and feedback during clinical work and classroom practice.
- Ongoing relationships with rigorously-selected mentor teachers whose guidance and training is tightly aligned with coursework and clinical experience.
- Extensive outreach and recruitment approaches including a highly-selective application process.
- A residency year, with stipend, that offers master's coursework concurrent with- and tightly aligned to- the classroom clinical experience.
- A comprehensive and ongoing induction process to introduce graduates into high-need classrooms and support them during their first two years of teaching.

### **Theory of Action / Strong Theory**

The College of Education at Temple is dedicated to pursuing best-practice STEM teaching, as evidenced by its 14 active grants in the areas of STEM, PSTEM, Math, and Science education. Further, Temple University has a successful history of identifying and training strong educators for introduction into the local school district. With the goal of broadening our impact on the Philadelphia school system, our theory of action is firmly based on contemporary principles of cognitive science and expertise development (Bransford, Brown, & Cocking, 2000; National

Research Council, 2011). To attain any higher level skill, including the kind of STEM teaching advocated in recent National Research Council reports, learners require that: (a) the skill is modeled and explained to them by individuals who have mastered this skill themselves, and (b) they have access to multiple, scaffolded opportunities to implement the skill in realistic settings (National Research Council, 2011). TTR's residency component and careful selection of mentor-teachers supports the undergirding theory of expertise-development.

High quality STEM teachers must understand the new standards and the instructional shifts required to implement them, recognize their efficacy in comparison to traditional approaches, and have the competence to implement the new curriculum and instructional strategies. The continued integration of the PA Common Core curriculum into district schools and charters will strain the resources and training of teachers as they will not only adopt new pedagogical approaches to emphasize critical thinking and literacy across all subject fields, but will also confront new instructional practices – such as the use of student learning objectives and data tracking – for successfully translating this curriculum into the classroom. While facing budget cuts and a growing teacher turnover rate, SDP is facing the unique challenge of not only filling staff vacancies in science and mathematics courses at the middle grades level, but also retraining current teachers to meet a higher standard of instruction.

Additionally, our partnership recognizes the importance of creating a more diverse teacher workforce that better represents the community it serves. This is particularly important across the SDP, where the teaching population is composed of 67.4% Caucasian, 26.3% African-American, 3% Latino, and 3.4% other whereas the student population is 52.8% African-American, 19% Latino, 14.4% Caucasian, and 13.9% other. Teachers, as role models and mentors, have the ability to shape their student's classroom experience. But currently, students who look to their

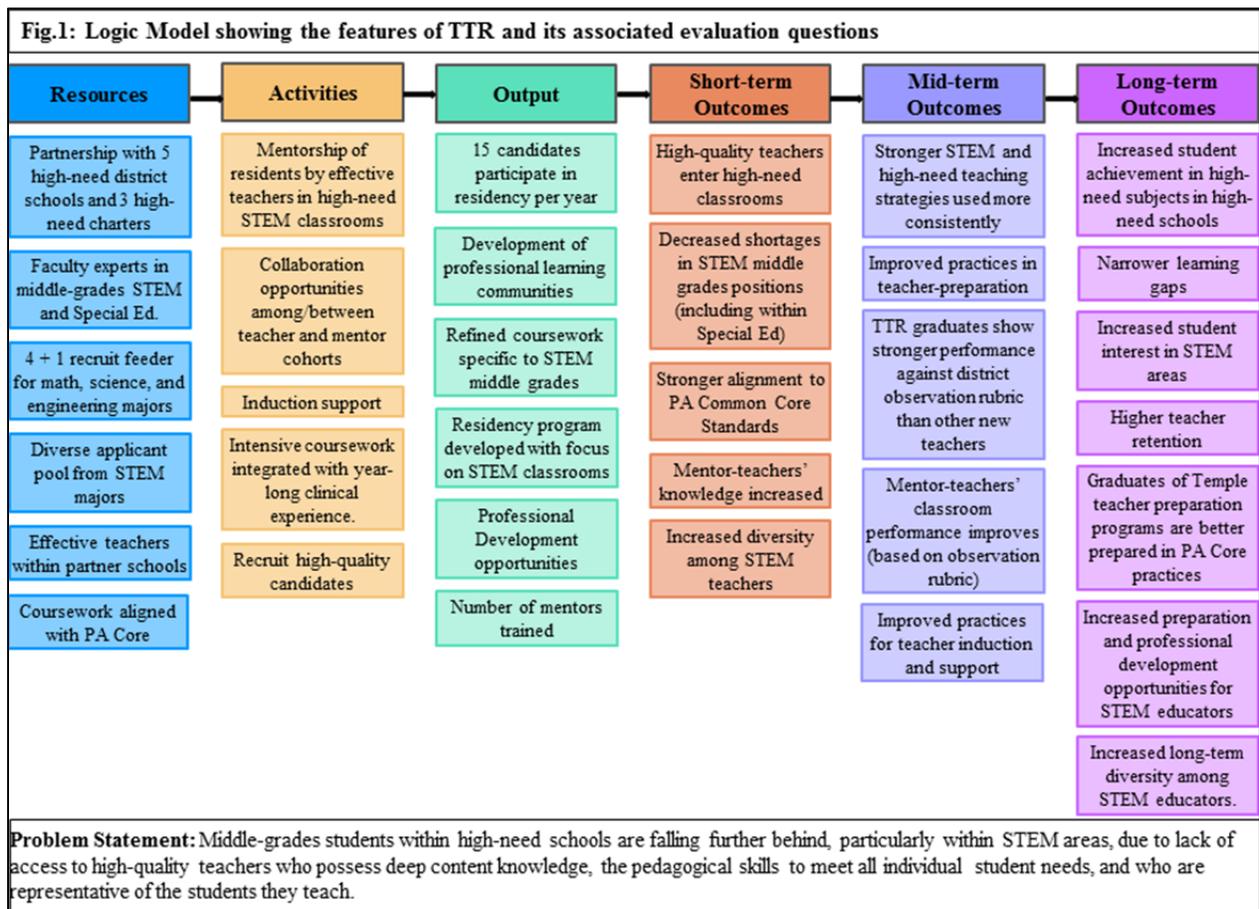
teachers to fill these roles are, more often than not, seeing someone unrepresentative of their culture, gender, or background.

In sum, the middle grades currently represent a key transition area where students are falling further behind in STEM subject areas due to lack of access to high-quality teachers who possess deep content knowledge and pedagogical skills to meet individual student needs (this is especially true with special education students) and are representative of the students they teach. To address these needs in an immediate and sustainable way, our partnership will build upon the success of Temple's already-strong diversity strategies, its prioritization of preparing students to teach in diverse urban classrooms, and its establishment of a 4 + 1 accelerated undergraduate/graduate program. TQP funds and our matching budget will help us develop a teacher residency program that will recruit only the strongest undergraduate students, majoring in math, science, and engineering, into a contiguous fifth year with graduate-level coursework concurrent with a year-long immersive experience in classrooms of high-need subjects within high-need schools. By the conclusion of the residency, not only will our graduates be prepared to teach in partnership classrooms whose communities they better represent, but will also have the training to prepare students to meet the PA Core Standards and to close narrow achievement gaps in the classroom.

Our partnership will broaden the impact of this program through the intensive collaboration between residents and mentor-teachers during and after the residency year. Our coursework and clinical-experience structure is designed to educate and train residents as well as mentor-teachers in new skills. While mentors will help residents acculturate to the classroom and its urban context and develop tactics for successful instruction, residents will expose mentors to the updated standards for literacy, data-tracking methods, and classroom assessment that are

embedded in their coursework. This reciprocal learning strategy will help residents become excellent teachers and will increase mentor-teachers’ proficiencies in instructional strategies tied to the PA Core Standards. In addition, residents will collaborate within their cohort and across schools, sharing school-based strategies and experiences. Similarly, mentor-teachers, who meet quarterly and at the yearly Summer Institute (discussed further in the Design Section), will have the opportunity to share experiences and feedback. Our hope is that, by promoting intensive collaboration, we will cross- populate influential ideas and best-practices to precipitate deep culture changes in classrooms, school buildings, and university teacher-preparation programs.

Fig.1. outlines these strategies.



## **Teaching Residency – Curriculum and Clinical Experience**

### *Design Principles*

TTR is designed to prepare middle-grades STEM teachers who meet the needs of urban districts like Philadelphia, and who will bring with them a thorough understanding of adolescents from diverse backgrounds, rich preparation in content areas, and 21<sup>st</sup> century classroom practices, so that they have the skills and competencies to meet the needs of those students. To that end, our program focuses on building deep, content-specific and pedagogical knowledge that complements the breadth of academic standards and the wide-ranging needs of middle-grades students. Our design aligns to four clear curricular goals. Teachers must: 1) understand the developmental and cognitive levels of their students; 2) master subject content and its adjoining pedagogy; 3) appreciate and teach to the diversity of their learning community; and 4) improve their tactics for assessment, research, data-tracking, and informed decision-making. Further detail on how the curriculum will be designed to intentionally meet these curricular goals may be found in Appendix H.

TTR coursework will reflect the state’s new middle-grade content standards to ensure residents develop in-depth knowledge of science and mathematics content appropriate for teaching at this level, as well as a solid understanding of the conceptual underpinnings of this content. We will rely on the Pennsylvania Department of Education’s (PDE) Standards Aligned System (SAS) as a portal to guide us through standards selection as appropriate to grade level.

We will instruct residents in the most current and proven instructional practices, and will build upon Temple’s current Standard to support critical and creative thinking, which reads:

Teachers [should] encourage students to question and analyze, rather than simply memorize facts, and to consider ideas from a variety of perspectives.

When appropriate, teachers ask open-ended questions that have no pre-established answers, which enable learners to respond creatively. The classroom environment promotes risk-taking and inspires learners to develop original and unique ideas. Learners identify patterns, take positions and develop arguments, construct explanations, and draw conclusions demonstrating higher order and innovative thinking.

(Temple University, 2013)

Additionally, TTR will include special emphasis on differentiated instruction to prepare residents for adapting to student achievement gaps and differing student needs within the high-need classroom. Our overarching goal for the curriculum is that prospective teachers understand not only the content and corresponding strategies for teaching it, but how such strategies reflect the diverse needs of middle-grades math and science students as different from young children and older adolescents.

*Coursework and Field-Work – Scope and Sequence*

To develop a strong link between learning theories and pedagogical practice TTR's clinical component will strategically intertwine with the course sequence and connect the theoretical perspectives of residents' curriculum with the practical issues they will face in classrooms within challenging, high-need contexts. Mentors and residents will co-teach in alignment with the research-based St. Cloud University model. Successful co-teaching, as defined by the St. Cloud model, transforms the classroom environment into a more productive space by engaging students, offering differentiated and individualized approaches to meet their specific needs, and giving students the chance to work in smaller groups that support all learning styles. Further, co-teachers develop strong partnerships that build their collaboration skills, instill a sense of accountability in the classroom, and offer immediate feedback and support. These changes in the classroom will not only improve student behavior, but positively impact the classroom

community through increased trust and attentiveness.<sup>1</sup> The model will be supported through a set of aligned teaching standards and rubrics.

The following sections discuss the residency timetable and offer a discussion of the coursework during this period, the clinical experience, and how the program will meaningfully integrate the two. A specific listing of the scope and sequence of the pre-residency and residency curriculum may be found in Appendix I.

During the summer after graduation and prior to residency:

*Coursework:* Students will take courses led by TTR faculty especially focused on issues related to urban environments, literacy development and pedagogy, special education and issues of differentiation, as well as collection/analysis of student data as evidence of learning. They will receive co-teaching instruction to prepare them for the collaborative work that will occur with their mentor-teachers in the host-classroom. Students will join a pre-established TTR community on Edmodo – an online education community and social network where participants can share resources and experiences – in order to begin creating a virtual library of resources and to begin contemplating their own citizenship in the broader educational community.

*Summer Institute:* At the conclusion of the summer program, pre-residents and mentors will come together for the Summer Institute, with courses targeted to the unique needs of their positions. Pre-residents and mentors will meet and co-develop learning strategies for the coming year, expectations for the co-teaching element, and potential lesson topics.

During the residency year:

*Coursework:* Residents will attend intensive mathematics and science methods classes each Friday in the fall semester. Assignments will focus on integrating field experiences to nurture a connection between theory and practice. Students will participate in a one credit seminar that

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<sup>1</sup> The Academy of Co-Teaching and Collaboration: St. Cloud University, <http://stcloudstate.edu/soe/coteaching//default.asp>

supports residents as they acclimate to the school and classroom culture and begin teaching whole class lessons. All TTR students will take a course in Literacy Methods, which will train them to effectively translate literacy practices into their science and math courses to broadly support this skill in their students. Additionally, residents will shadow a middle-grades student during the fall semester in order to understand his/her unique needs. Challenges in supporting this student will serve as the basis for an action research project as part of their capstone course in the spring semester. This project will reflect upon their experiences and emphasize the use of research and data tracking within the classroom to gauge student achievement and improve instruction.

*Clinical experience:* Concurrent with their coursework, students will be in STEM subject classrooms within high-need middle schools, Monday through Thursday. They will work closely with their mentor-teacher to develop and enact new classroom strategies to augment student learning. Beginning in the first semester, residents and mentors will co-teach, incorporating strategies to shift the relationships in the classroom and provide a diverse teaching experience. This includes: a) one teaching while the other observes; b) one teaching while the other assists; c) station teaching; d) parallel teaching; e) supplemental teaching; f) alternative (differentiated) teaching; and e) team teaching.

Students will remain in the same classroom, with the same mentor through the spring semester. The co-teaching balance (e.g. who leads more often vs. who assists) will shift to accommodate the gradual release model and allow residents to transition into a more continuous teaching role, while the mentor focuses more on assessment and support of the resident and continued feedback.

The PDE requires that middle-grades certification programs encompass 4<sup>th</sup> and 5<sup>th</sup> grades in addition to the usual 6<sup>th</sup> – 8<sup>th</sup>, in order to create a more adaptive teacher workforce. Building upon these guidelines, the TTR program proposes an innovative and flexible course design that embeds 4<sup>th</sup> and 5<sup>th</sup> grade experiences within the residency to meet state guidelines and to ensure residents get exposure to a wide range of grade levels. Students will also be given exposure to other classrooms based on needs as identified throughout the year, such as classrooms with high numbers of English Language Learners, classrooms with Special Education students or classrooms where the experienced teacher has a high level of expertise in a competency area that the student has struggled to master.

*Meaningful integration:* Coursework will follow a dynamic process of writing lesson plans, revising them, enacting (or teaching) them, and finally reflecting on their success. Through this vehicle, graduate-level coursework will address classroom-specific topics such as the PA Core Standards, critical thinking, instructional practices, differentiation, motivation and engagement, classroom management, and assessment. Additionally, TTR course instructors will collaborate with mentor teachers in the residents' host-classroom to plot out topics appropriate for the course. Each course will incorporate four to five lesson plans for the resident to introduce and will include small groups and whole class instruction.

To create a continuous feedback loop, TTR faculty will supervise the practicum experience, highlight connections between theory and practice, and use what they see in the resident classrooms to inform coursework adjustments. This structure was implemented in the School of Education's middle-grades teacher preparation programs and has resulted in graduates who were better prepared teachers. Building upon this innovation, the TTR will implement a similar web –

between residents, mentors, and instructors across the contexts of the graduate and middle-grades classrooms – which we believe will improve the quality and impact of the curriculum.

Students will continue to participate in the Edmodo community during their final semester. Through participation in this arena, residents will deepen their connections with each other as well as become citizens of the online educational community and broaden the reach of our program.

During the post-residency summer:

Residents will have the option to pursue a certification in Special Education. Students wishing to obtain this certificate will take a final course co-requisite with a specialized inclusive practicum experience that highlights strategies for differentiated teaching. This experience will emphasize how assessment can be used to plan instruction, monitor its effectiveness, and guide future instructional decision-making to support student performance. Focus will be placed on developmental, cognitive, physical, social, behavioral, processing and learning needs of students in the inclusive classroom. Residents choosing the Special Ed certification will be given intentional opportunities to work in classrooms with special-needs students or to visit other classrooms (depending on the class composition).

**Mentorship Program**

In accordance with the requirements of Absolute Priority 2 and the recommendations of UTRU, the TTR resident will work in the host classroom of a STEM area teacher within our partnering high-need schools for a full year while enrolled in concurrent and complimentary graduate-level coursework. Broadly, the goal of TTR’s mentorship program is to nurture a reciprocal learning environment in the host-classroom which incorporates the knowledge, beliefs, and strengths of both novice teachers and their mentors so that they can mutually raise the bar of classroom excellence. TTR will accomplish this through a multi-faceted approach that

focuses on training, mutual trust, and professional growth over the course of the three-year, one-on-one mentorship. Furthermore, TTR will follow a rotational model, concentrating residents in a set of 2-3 schools and moving to another set in the following year. The concentration of residents within the same school will deepen our impact on that building's culture, while the yearly rotation will share best-practices more widely and will avoid overburdening the teaching resources of its schools. We believe the schools we have identified (including two magnate schools and two high-performing schools) will have enough qualified teachers to meet this criteria. Should we need additional candidates, we will consider other schools or a paired-placement model.

#### *Selection Process*

During the initial planning year, TTR staff will work closely with UTRU to develop selection rubrics for recruiting highly effective teachers from our partnering high-need schools. TTR will seek a certain kind of teacher – one with demonstrated effectiveness in the kinds of environments residents will soon enter, and who shows him/herself to be a talented, innovative, and collaborative member of his/her educational community. All mentor-teachers must have at least three years' experience as a STEM area classroom teacher (per the requirement of the PDE), as well as at least one year in a high-need school.

Applicants must demonstrate a willingness to assume the extra responsibilities of: a) having their classrooms observed by Temple faculty and teacher-residents; b) communicating with student-teachers, faculty, and the TTR program staff; c) attending the annual “Summer Institute;” d) attending ongoing Temple-sponsored professional development opportunities; and e) completing resident Observation Reports.

Just as the teaching residency application process will incorporate the input of SDP and APS representatives, host-schools will work with TTR staff to identify, evaluate, and select promising mentor-teachers. TTR staff will observe candidates' classrooms and get feedback from their principals regarding their effectiveness as a teacher.

Broadly, TTR will assess the potential mentor's leadership skills, teaching strength, adaptability in the classroom, and demonstrated impact on the community around them. A teacher with leadership skills is one who is goal-oriented and who acts as a change-agent within the classroom. Teaching strength, on the other hand, may be evidenced by an applicant's demonstrated ability to facilitate gains in students' academic and personal success, their use of Understanding by Design (UdB) and backwards-planning, and/or their alignment with Temple Standards for Skillful Teaching<sup>2</sup>. Applicants who demonstrate adaptability are those who make data-driven decisions, use innovative approaches in their instruction, incorporate technology into the classroom, and approach problems in a constructive and creative way. Their impact and collaborative efforts may be evidenced by recommendations from colleagues who have benefitted from working with them.

During the interview, teachers will discuss their reasons for assuming the role of mentor-teacher through a discussion of: 1) How they give back to the profession, 2) How they plan to support and offer opportunities to a future teacher and his/her future students; and 3) How they will use a relationship with Temple faculty to develop themselves professionally; 4) How they view the role of the mentor-teacher.

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<sup>22</sup> By Temple Standards for Skillful Teaching, an applicant would: a) ensure understanding of Content; b) exhibit Coherence and Continuity; c) make Real-World Connections; d) facilitate Active Learning; e) promote Critical & Creative Thinking; f) ensure Reflective Thinking

### *Training and Support*

Mentors will receive ongoing training and support over their three-year service. This will include an annual, 1-week “Summer Institute,” which will offer them the setting, tools, and training to excel in their craft. The Summer Institute will include discussions of what constitutes “outstanding teaching,” as well as a review of resident performance standards and milestones. These sessions will introduce coaching, supervision protocols, and strategies for intensifying the mentorship if the resident is struggling to perform. The Summer Institute will offer mentors valuable reflective time in which to strategize their learning objectives for the coming year and their deliberate plan for integrating the teacher-resident into their classroom. To build trust and pathways for mutual learning between resident and mentor, the annual summer training program will introduce the mentor and resident pairs and support collaborative discussions of their expectations and strategies for the coming year.

In their first year as a mentor, each teacher will host a single TTR resident in his/her classroom for the entire school year. This will allow residents to trace the full continuum of the school year, nurture the mentor-resident relationship, and foster deeper collaboration. By deliberately pairing mentors with residents who have complementary skills and by adopting the co-teaching model, we will support mentors in learning new skills and becoming better equipped to handle the challenges of shifting curriculum standards.

Rather than recycling mentor-teachers through the same hosting experience every year, our program will emphasize professional growth by transitioning them to new roles over the course of a three-year mentorship rotation. Mentors will work with the same mentee over this three-year cycle, from residency through induction. In Year 1, veteran teachers will serve as mentor-teachers to the students they host. Their training in the Summer Institute will reflect this with a

focus on developing coaching and supervision protocols that will allow them to successfully lead their classrooms and their apprentice-residents. In their second and third years, mentor-teachers will become mentor-coaches to the TTR graduates who are entering their own classrooms for the first time as teachers of record. This will involve working with the first and second-year teachers to create a professional development plan that includes personalized support such as co-teaching, visiting other classrooms, or coaching within their classroom. In accordance with this shifting role, the mentor's second and third years at the Summer Institute will focus on strategies for management and assessment of classroom practice. Additionally, mentor cohorts will meet quarterly to share experiences and develop their own skills against identified need areas.

The opportunity to increase and diversify mentors' classroom skills and responsibilities – through their mentorship as well as through opportunities to visit other high-performing classrooms alongside their mentee – is one facet of the TTR's efforts to incentivize the mentorship program. TTR will also offer a [REDACTED] stipend, spread over three years, to all mentor-teachers who successfully complete the Summer Institute and mentorship rotation.

Additionally, as SDP rolls out the PA Teacher Educator Effectiveness System, there is increased interest in ensuring that teachers have available support, including coaching capacity within the building. In light of this, the mentorship opportunity will better provide teachers the opportunity to take on increased leadership within their buildings and at an opportune time. Finally, all mentors will be offered membership in Temple University's Alumni Network.

### **Teacher Residency Recruitment, Application, and Selection Process**

#### *Teacher Residency Admission Goals and Priorities*

TTR's admission process will operate in ongoing coordination with the SDP and APS to guarantee that our recruitment initiatives and selection criteria align with school needs,

objectives, and instructional initiatives, and result in the strongest possible cohort of teaching residents. To address the district and the nation's call for a more diverse teaching population that better represents the communities it serves, TTR will leverage the recruitment strategies already in place at the College of Engineering and the College of Science and Technology to yield a diverse residency cohort with undergraduate concentrations in math, science, and engineering.

*Building off of Current Structures – the 4 + 1 program*

While the program design of the TTR will be developed anew, it will build upon current structures at Temple and its partners. Temple already has a pre-established structure for a 4+1 accelerated undergraduate/graduate program in which undergraduates earn dual concentrations in middle-grades education and a content area of their choice. This program, which will begin recruiting sophomores and juniors in the 2014 – 2015 school year, culminates with a teacher's certification and contains the necessary pathways for earning a certification in Special Ed. The 4+1 program will introduce participating students to four pedagogy courses over their final four semesters in order to ready them for their graduate experience. Our partnership proposes to build TTR as a strand off of this 4+1 program.

We recognize that, in the first two year of the residency, the 4 + 1 program will not yet have built a full applicant pool of seniors with four completed courses of teacher preparation. To account for this, during the first two years, we will employ intensive recruitment strategies (such as increased incentives) to pull in applicants to our program. In year two, we will be able to accept seniors who applied to the 4 + 1 in their junior year and have completed two semesters of teacher-preparation; these students will make up their remaining two courses in the summers prior-to and after their residency year. In Year 3, TTR will be supported by a steady stream of fully-prepared prospective teachers from the 4+1 program – a transition that will ensure our

sustainability. We recognize that this plan will impact our curriculum and management decisions in the first two years and have accounted for this with a flexible design approach.

The proposed partnership is very conscious of the federal government’s “supplement not supplant” requirement and, as such, will only devote TQP and matching funds to the creation and maintenance of a new teaching residency as an extension of our current 4+1 structure. We will utilize the core courses, pathways, and partnerships already established and implement: 1) new, more-specialized graduate-level curricula with a deeper integration of theory into practice; 2) cross-disciplinary teaching practices; 3) a year-long teacher residency culminating with a master’s degree; 4) a mentorship program that offers reciprocal learning opportunities; and 5) more deliberate placement of graduates into high-need schools. By building upon existing structures and relying on established agreements among our partnership, TTR will surpass the current system to create an elite group of teachers with the best possible tools and preparation to positively impact their classrooms, schools, and community.

### *Recruitment Strategies*

In accordance CPP1, and in order to meet the district’s and charter partner’s current needs for highly-qualified teachers of STEM subjects, Temple will leverage the already-successful recruitment initiatives of its STEM schools to attract a diverse applicant pool. Temple’s current incentivization efforts for the Colleges to develop and expand the 4 + 1 programs, combined with TTR’s recruitment from some of the largest undergraduate programs in the University, will ensure a healthy pool of candidates. This fall, the 4 + 1 program expects to receive 25 applications from students in the College of Engineering and 25 from the College of Science and Technology. Through this, we anticipate recruitment of 15 students each year (after the initial planning year and a ramp up year) into the residency. We recognize that our applicant pool

during the first two years of the program will be smaller, as we work on building a student base in the 4 + 1 program. Therefore students will be incentivized with a higher stipend of [REDACTED] for the residency year. During this time, we will aggressively target honors students and students of color with specializations in fields related to math, science, and engineering from across the colleges. Additionally, our close-working relationship with SDP and APS will allow us to offer priority access to hiring once residents complete the program.

A recruiter from the Colleges of Engineering and Science and Technology will work with the TTR staff to recruit students (via email blasts, e-brochures, social networking sites, etc.) across both colleges. In addition, our Graduate Admissions' Office will set up days throughout the semester where our recruitment team will attend specified courses in these colleges to describe the program and motivate potential applicants. To publicize the program and gain interest, our partnership will host a two-day – “Teaching Youth in Urban Schools” retreat each semester for interested applicants. Students will visit an urban school classroom to observe math and science teaching as well as interact with middle-grades youth.

### *Selection Criteria*

The selection strategies below discuss the admittance material required for students to enter the general 4+1 program in their junior and senior years, followed by the specialized admittance material required for entrance into TTR in the second semester of students' senior year. This process is designed to funnel the most talented, qualified, and passionate students into our urban-teacher residency program. A major point of distinction between TTR and other middle-grades residency programs is its requirement that applicants earn their bachelor's degree in the areas of math, science, and/or engineering. This will allow residents to build effective teaching methods on top of a strong foundation of content knowledge, rather than sacrificing expertise to

preparation. Of particular note will be TTR's recruitment of College of Engineering students who will have appreciable content knowledge in the engineering design process. Such knowledge will enable these residents to effectively engage middle grades students in engineering practices, a new area of emphasis in nascent science education reform efforts (National Research Council, 2012) and the *Next Generation Science Standards* (NGSS Lead States, 2013).

4 + 1 Program Admittance: Students will enter the 4 + 1 program during their undergraduate junior and senior years. Applicants must demonstrate strong coursework, including a required gpa of 3.25. Candidates must also submit two letters of recommendation (at least one from a college faculty member) that assess the student's mathematics and scientific skills and/or their interest in teaching in these areas. Applicants are required to meet official clearances for working with children in the Commonwealth of Pennsylvania and must be in good standing to earn a bachelor's degree in mathematics, biology, chemistry, physics, geology, natural sciences, bio-engineering, engineering, and/or environmental studies.

Teacher Residency Program Admittance: Applicants must meet the criteria of the Graduate School as well as additional criteria specific to the program. Applicants must receive passing scores on PRAXIS II assessments for middle-level subject concentration areas and include a statement of their related experiences, professional plans, and objectives for obtaining a teacher certification in their specialty area. A successful essay will demonstrate a strong sense of "why this" program, and "why now." Furthermore, in order to gauge a candidate's potential for high-quality teaching within an urban environment, we will employ the Haberman Star Teacher Pre-Screener, a widely-accepted assessment tool that predicts teacher effectiveness and capacity for working with students in poverty and at-risk schools.

Once application materials are reviewed by the Temple College of Education’s Graduate Programs Office to ensure eligibility standards are met and application data recorded for progress monitoring, a selection committee – consisting of the TTR staff and faculty, as well as representatives from the school district and charter partners– will use an established rubric to further assess individual qualifications. The strongest candidates will attend an Interview Day (the final selection step) where they present oral responses to two case scenarios. Ultimately, applicants are evaluated on the strength of their: 1) Content knowledge (as demonstrated by their course history, GPA, and letters of recommendation); 2) Verbal and written communication skills (as demonstrated by their essay and interview); and 3) Demonstrated ability to reflect, self-assess, and correct their approach (as demonstrated by the Haberman Assessment and their interview).

Admitted applicants will meet with the project coordinator before formal coursework starts to complete baseline data collection for program monitoring and discuss individual learning needs and program objectives.

By establishing a stable applicant pool of talented, diverse students who are passionate about teaching in places that need it most, and by selecting residents through a highly competitive process, we will take the first step towards producing teachers who will motivate students, drive achievement gains, inspire others, and transform their educational community.

### *Living-Stipend*

In accordance with the General Education Provisions Act, our partnership will strive for equitable access to the residency program. A current barrier preventing low-income students from participating in grant activities is the high cost of teacher residency programs, compounded with a time-requirement that does not encourage secondary employment. Our solution is that

grant money support students with [REDACTED] living stipends during TTR Years 1-2 and, as the program transitions to a steady state, to continue offering stipends on an as-need basis, with the full amount awarded to those most in need. A need-based stipend will target supports while saving TTR costs and ensuring its financial stability beyond the duration of the award period.

### **Post-Residency Service Obligation**

In accordance with UTRU guidelines and Absolute Priority 2, TTR graduates must commit to serve within a high-need school identified by this partnership for a minimum of three years, in exchange for an accelerated hiring process and a comprehensive induction program spanning the first two years of their teaching experience.

Residents will be set up for successful hiring through the intensive residency design that targets the needs of our partnering schools. TTR graduates will be highly-effective teachers who better represent the communities they will teach in, and who are experts in high-need content areas (science and math middle-grades with a special education focus). Additionally, the College of Education has a strong history of placing graduates in local schools, and our partners in SDP and APS have committed to prioritized hiring for residency graduates, where they will have increased visibility in the candidate pool. Additionally, the rotational design of the residency, where the schools that host residents change on a three year cycle, is designed to maximize the visibility of candidates and the likelihood of openings at their host schools.

Our partnership will benefit from its already-strong relationships with SDP and the charter partners in the quality and responsiveness of the project design to district need. TTP program staff will work closely with the SDP and individual principals to co-develop processes for transitioning participants from pre-service study to full-time classroom positions.

### *TTR Requirements and Repayment Conditions*

Students will receive a one-year stipend, paid in monthly installments that begin in the summer preceding the residency year. Upon award, residents must sign a Memorandum of Understanding/Master Promissory note which demonstrates their agreement to satisfactorily complete: 1) the program of study for which the TQP funds are awarded under the TTR; 2) the PDE requirements for being awarded an Instructional I certificate; and 3) three years of service as a mathematics or science teacher. Service must be completed within eight years after graduation from TTR and must be ideally performed in the high-need district charters and schools represented in this partnership. Periodic verification of full-time employment in teaching will be required proof of this commitment.

If a resident does not meet these requirements, their stipend will convert to a loan which he/she must repay in full to Temple University. The terms and conditions of this agreement will include: 1) A commitment to repay the loan within ten years from the date the resident failed to meet Program requirements; 2) A Grace period for repayment of the loan, which will not commence so long as the applicant remains in compliance with all eligibility requirements; 3) An interest rate, assessed daily at the rate of 5% per annum, that will begin accruing on the principal amount of the stipend funds, unless in period of deferment (in which case no interest will accrue); 4) Prepayment opportunities, at the resident's discretion and without penalty; and 5) Forbearance for residents facing economic hardship, illness, and/or or military service.

### **Induction Program**

Teacher education is, in itself, an insufficient preparation for high-quality teaching. Rather, high-quality teacher preparation programs require a sustainable approach to new teacher support. In a widely-cited study, Smith and Ingersoll (2004) found that the most salient factors of an

effective induction program (as measured by teacher retention) were having a mentor in the same field, having common planning time with teachers in the same subject, and being part of an external network of teachers. Consistent with best practices, TTR will use a blended model of face-to-face and online support. The goals of our induction program are:

- To nurture teachers' abilities to: 1) Develop core ideas and crosscutting concepts by effectively engaging students in authentic mathematical and scientific practices; 2) Support instruction with technology; 3) Design, implement, and interpret valid measures of student performance so that they can alter their approach as needed;
- Through ongoing support, to increase teachers' self-efficacy and their professional identity as successful urban STEM teachers;
- To create a sustainable model for the professional development of both new and experienced teachers in an urban setting.

For the first two years of their employment, residency graduates will gather with their cohort each month, under the guidance of the TTR Program Manager. These meetings will address concerns (such as course design or student work), revitalize their passion, and share new techniques for improving student achievement. In addition, mentor-coaches and their mentees will receive release time per year to visit each other's or other high-performance classrooms – whichever they have mutually decided will benefit their teaching practice.

In addition, the TTR Program Manager will conduct observation and feedback cycles with each new teacher six times in Year 1 and three times in Year 2, and will conference with their principals to determine areas of success and potential improvement.

If, based on feedback from evaluations, mentor-coaches, and/or school principals, a graduate seems to be struggling to acclimate or perform during the early years of their employment, TTR

will support them through an intensive intervention and improvement plan. Our goal is to reach out to district principals to offer support and resources, where needed, to get a teacher back on track. As the program grows in scale and the number of teacher cohorts in the field expands, the residency and mentor alumni community will grow and create a stable, high-quality network which will sustain novice-teachers well past the duration of the award period.

### **Collaboration of partnership to maximize TTR effectiveness**

As discussed further in the Management Plan, TTR will hinge upon the substantial resources of our partnership, which includes the IHE, Temple University, along with its Colleges of Education, Engineering, and Science and Technology as well as a high-need LEA, the School District of Philadelphia, five high-need district-managed schools and three high-need charter schools. Both Temple and the SDP meet the eligibility requirements of this grant. In Temple's College of Education, graduates who intend to enter the field of teaching have passed the State-mandated certification requirements of: 1) A minimum GPA of 3.0; 2) Completion of program requirements and student teaching; and 3) Passing scores on the appropriate certification test (PRAXIS II). In 2013, Temple's pass rate for the Middle Grades Math and Science Core Subjects Content Test was 86%, for the Core Pedagogy Test was 93% and for the Math Content test was 100%. The SDP currently serves a student population of which 36.4% are from low-income families, and reports a teacher-turnover rate of 34.7%.

Our partnership will utilize the array of resources it has – from its established recruitment pathways across Colleges to its diversity of host-school types – for the creation and support of TTR. For recruiting a highly-knowledgeable and diverse set of students, we will rely upon structures in place through the Colleges of Education, Engineering, and Science and Technology. Further, the College of Education comes equipped with strong faculty and core curriculum –

upon which it may build – in the fields of middle-grades STEM and Special Ed teacher preparation. Because the efficacy of this program depends on its ability to meet district needs, SDP representatives will serve as contributors to the resident selection and placement process, clinical experience design, and mentorship program. Finally, UTRU will serve as an influential partner, particularly in the planning year, to design TTR rubrics, expectations, and milestones that will ensure the strength of the program.

### **Resources and Sustainability**

While TQP funds will support our efforts to develop and launch TTR, our partnership is committed to maintaining the program beyond the length of the award period and so has developed a multi-year operating model to decrease our reliance on external funding and ensure TTR's long-term success. This includes using Temple's 4 + 1 as a long-term applicant feeder and maintaining a rotational design that avoids over-burdening district resources. Additionally we have embedded a gradual budgetary shift toward absorbing ongoing program costs, such as stipends, staff salaries, and UTRU participation. Further discussion of sustainability may be found in the Budget Plan.

### **C. MANAGEMENT PLAN**

The partnership represented in this proposal – consisting of Temple University, its College of Education, College of Engineering, and College of Science and Technology, as well as the School District of Philadelphia (SDP), and a group of district and charter schools– recognizes the need for a collaborative management strategy that incorporates its shared resources in the design, operation, and maintenance of the proposed program. The implementation timelines proposed in this section include time for collaborative design work, progress checks, gradual scaling up of the program, sustainability planning, and intentional implementation of lessons learned and best-practices across all Temple teacher-preparation programs.

## **Program Timeline**

Appendix J offers a timeline that includes specific milestones during the planning, initiation, and maintenance of the Temple Teacher Residency (TTR) program. As this timeline suggests, Year 1 will be a planning year in which TTR will hire key personnel, further develop graduate coursework in teacher preparation within STEM and Special Ed., develop strategies for incorporating this into the clinical experience, and create residency evaluation rubrics and improvement plans that build off of Temple's current material. By Year 3, TTR will reach capacity (15 students) and will maintain it during the final two years of the grant while incorporating support and resource structures to ensure the sustainability of the program past the award period.

As discussed in the Program Design, TTR will operate as a strand of Temple's pre-established 4 + 1 accelerated undergraduate/graduate teacher preparation program which recruits sophomores and junior majoring in fields related to math, science, and engineering. The 4 + 1 program will recruit its first batch of sophomores and juniors in 2014-2015 school year, meaning that TTR will be able to draw from this applicant pool by 2015-2016 (the second year of the award period). Until TTR reaches capacity, we will utilize recruiters across the College of Engineering and the College of Science and Technology to specifically target a diverse group of strong juniors and seniors who show potential for high-quality teaching. During the first two years, when students will enter the program without necessarily completing the required coursework, the TTR will adjust the program to provide participants access to these courses over the summer sessions.

## Responsibilities and Management Structure

The design and implementation of this project, as well as the responsibility for achieving its goals, will be shared by key staff across the College of Education, College of Engineering, College of Science and Technology, SDP and APS. The sections below highlight key responsibilities and discuss the strategies and personnel assigned to them.

*Project Leadership and Administration:* TTR offers our partnership to support the high-quality preparation of much-needed teachers in high-need contexts, and to inform teacher-preparation efforts across the university. Achieving this requires considerable leadership at the highest levels to coordinate faculty and resources from across the colleges, ensure ongoing collaborative relationships with and within the district-managed schools and charters, monitor progress, and share successes across the university and other institutions of learning. Dr. Wanda Brooks will serve as the PI of this proposal and its core advisor. Dr. Brooks is the Associate Dean of Teacher Education and an Associate Professor of Literacy Education at Temple. She has considerable experience in education and teacher preparation as well as a track record of success with funded research projects. Dr. Brooks served as Co-PI for the “Urban Education Collaborative,” grant funded by the William Penn Foundation, and as PI for the “Teacher Education Reform in an Urban-Serving University,” funded by The Ford Foundation. Dr. Brooks will also manage budget activities, including allocation of TQP and matching funds, in coordination with staff in the Temple budget office.

A newly appointed Program Manager will work with Dr. Brooks to support the day-to-day operations of these efforts, while providing leadership and oversight to the TTR. The Program Manager will work closely with the senior advisory group, Temple faculty and staff, school leaders and teachers from the SDP, to ensure effective collaboration and use of research-based

principles and best-practices in the design and implementation of this program. He/She will also convene quarterly check-ins with stakeholders to review program and participant progress.

The Manager will be supported in his/her administrative efforts by a newly-appointed Program Coordinator who will assist the daily operations of the program to assure the timely completion of all tasks, events, and deliverables. The coordinator will also serve as the primary liaison with the other colleges on the recruiting and staffing activities.

*Senior Advisors:* Dr. Greg Anderson, Dean of the College of Education at Temple University, will serve as an advisor in the development and implementation of TTR. Before joining Temple, Dean Anderson served as the Dean of Denver’s Morgridge College of Education where he intensively transformed its program, faculty, and student body. In 2009, Dr. Anderson partnered with Denver Public Schools in the launch of the first district-based residency program in the nation, which has excelled in teacher preparation for high-need schools.

Naomi Wyatt, Chief Talent Officer of the SDP, will represent the district’s interests and needs in the design and implementation of TTR. Ms. Wyatt is the cabinet-level executive responsible for employee relations, benefits, recruiting, and human capital development for the school district’s 18,000 person workforce. Additionally, Kristine Magargee will serve as TTR’s point-person in the partnering charters. Ms. Magargee is the Director of Curriculum & Instruction at APS and is responsible for general admission and instructional operations, and is essential in leading staff towards the achievement of APS’ philosophies and goals.

The Dean of the College of Science and Technology, Dr. Michael Klein, as well as the Dean of Engineering, Dr. Keya Sadeghipour will advise on program design as it relates to the preparation of highly-qualified teachers in STEM areas. Additionally, both deans will also play an

active role in encouraging and supporting faculty involvement and ensuring accountability for the quality and consistency of the program.

Dr. Juliet Curci, the Director of School and Community Partnerships at Temple University, will serve in an advisory role to track resident performance during the induction period. Dr. Curci has worked closely with partnering schools and charters in Temple’s teacher-placement programs to ensure new teachers are successfully leading classrooms and acculturating to their new environment.

*Strategic Partners:* During its planning year, TTR will become a partner program of the Urban Teacher Residency United (UTRU) Network, a non-profit organization dedicated to designing, implementing, supporting, and broadening the impact of teacher residency programs. UTRU will serve as an influential leader and thought partner in the development of TTR courses, rubrics, milestones, and metrics of success. Additionally, this alliance will allow our partnership to participate in a national discussion of best-practices residency programs.

*Candidate Recruitment, Selection, and Support:* Marketing and recruitment strategies, as well as candidate outreach, selection, and support will be the shared responsibility of the Project Coordinator, as well as personnel within the Colleges of Engineering and Science and Technology. The Project Coordinator will work closely with Dr. Jamie Bracey in the College of Engineering to ensure the TTR is well-publicized across these schools, with particular attention given to developing a highly-talented and diverse applicant pool within the 4 + 1 program that will serve as TTRs main applicant feeder after the second year of the award period.

The Program Coordinator will also host informational sessions to engage recruits, with the support of an undergraduate/graduate assistant. The Program Coordinator will offer guidance

during the application process to ensure that high-potential candidates are supported through the application process.

When all applications have been received and screened for basic requirements, the Program Coordinator will organize these materials for the Selection Committee and will coordinate the interview day. The Selection Committee will be comprised of the Program Director, key faculty in the TTR program, and representatives from the SDP. After reviewing the applications and discussing the interviews, the Selection Committee will choose the top applicants for admission.

*Program Design/Faculty Mentors:* As described, TTR is a collaborative effort of Temple University, and the SDP, which includes district-managed schools and charters. Program design – particularly the design of courses and the integrated clinical experience – will be led by the Program Manager and a team of faculty in mathematics, science, and teacher preparation with additional input from representatives of SDP and APS who will speak specifically about district and school curriculum and training needs. Among the faculty in this group, who will serve in design roles, on candidate selection committees, and as course instructors and faculty mentors are: Dr. Joseph Boyle (special education instruction and inclusive teaching practices for teaching students with learning disabilities), Dr. Kristie Newton (math education, including teacher preparation in mathematics and learning in the middle grades), Dr. Doug Lombardi (science education, specializing in educational psychology). These faculty have extensive experience in middle-grades teaching preparation and will lead graduate-level courses in which they make weekly visits to the host-classrooms – an approach that will further integrate coursework and clinical experience.

The Program Manager will work closely with principals in the partnering schools and charters to coordinate the clinical experiences, including mentor teacher selection and ongoing placement logistics.

*Mentor-Teachers:* Mentor-teachers will be rigorously chosen from the district schools and charters represented in this partnership and will operate on a three-year cycle, serving as teacher-mentors for the first year and transitioning to a mentor-coach during the resident’s first two years of teaching. Mentors will work closely with their resident, program faculty and other mentors to share experience and knowledge while acquiring new skillsets and deeper content knowledge aligned with the PA Core Standards.

*Resident Support / Mentor-Teacher Support:* The Program Manager will be responsible for ensuring residents and mentor-teachers engage in a productive classroom experience. The manager will be supported in this role by Dr. Juliet Curci, who will advise the Program Manager on strategies for identifying and supporting residents, including intervention efforts and improvement plans. Dr. Curci, the Director of School and Community Partnerships in Temple’s College of Education, works closely with Pre-K-12 schools and organizations in Philadelphia to place and support pre-service teachers.

Ongoing support and training for mentor-teachers will be provided by the Program Manager and faculty, who will work closely with them during the Summer Institute, and collaborate with them over the course of the clinical experience (as faculty enter the host-classrooms.) The Program Manager will also host quarterly meetings for the mentor-cohorts to gather and discuss practices for improving their classrooms and the clinical experience.

*Technical Support/Web Development:* Lori Bailey, the Director in Information and Instructional Technology, will provide ongoing technical assistance and support for the TTR. In Year 1, she will develop the TTR website to describe and promote the residency, and will support its upkeep and maintenance in the following years. Additionally, she will offer technical oversight and coordination for the TTR, particularly in the areas of data management and tracking.

*University Collaboration:* Our partnership recognizes that it has the unique opportunity to influence and improve teacher preparation practices. The Program Manager, with the support of Dr. Brooks and Dr. Anderson, will serve as a liaison between the TTR and other Temple teacher-preparation programs. He/She will regularly share findings from progress monitoring, identify best practices, and discuss implementation challenges in order to initiate a dialogue of how university teacher preparation can be fundamentally improved.

*Progress Monitoring and Evaluation:* The ongoing and frequent evaluation of the residency program is necessary for its flexibility, growth, and sustainability. The PI, Program Manager, Program Coordinator, and supporting staff are responsible for ensuring that the program meets its regular milestones (See Appendix J). The Program Manager will also assess the success of the program through: 1) Faculty feedback from coursework; 2) Resident feedback at the end of each course and throughout the residency and induction; 3) Evaluations, completed by the mentor-teachers, of residents' performance in the host-classroom; 4) Feedback from principals in partnering schools and charters; and 5) Principal evaluations of novice-teacher performance and growth during their first two years, as well as surveys of hiring principals. TTR will also incorporate external evaluation procedures through WestEd, a widely-accepted evaluation firm that incorporates an array of measures to determine the quality, efficacy, and impact of a program. Further detail may be found in the Evaluation Plan.

#### **D. PROJECT EVALUATION PLAN**

The TTR evaluation plan, a comprehensive effort to use data to evaluate TTR effectiveness of and continually improve upon its practices, will measure the specific program goals and objectives described in the Program Design. This effort is a mixed-methods design which incorporates formative and summative assessment information gained through internal and external

evaluation approaches. The evaluation plan includes the collection of the TQP performance measures and the partnership agrees to participate in national evaluation of the TQP program as required by the US Department of Education. The external assessment will be co-designed with WestEd, a nonpartisan, research-driven group specializing in evaluation of educational programs, and a longtime partner of the College of Education. This evaluation plan will complement our program's ongoing progress monitoring and inform its continuous improvement.

The evaluation goal is to assess the quality of TTR in terms of its program design, implementation, and outcomes, as well as to inform ongoing program improvements. Our metrics of success and corresponding assessment strategies will examine the extent to which the proposed project is implemented as planned (process evaluation) and the program's effects on residents, mentors, students in classrooms taught by residency graduates, targeted high-need schools, and Temple's other teacher preparation programs. The outcome evaluation questions below are aligned with the program's logic model and TQP performance metrics:

- 1) How well do the applicants and selected residents meet the academic performance requirement specified in the proposal, particularly within STEM subjects? What are the attained levels of participation by gender, race, ethnicity, and STEM fields? What are the relative influences among various factors leading students to apply for the program?
- 2) Is the necessary level and quality of collaboration occurring among the three Temple colleges, and with the partner LEA?
- 3) Do the selected mentor-teachers reflect the proposal's desired criteria? At the end of a mentor's summer training, how empowered do they feel to support student teachers?

- 4) Do graduates feel prepared and empowered to succeed as teachers of record? How quickly and how well do they pass qualification steps? How do school administrators rate the program’s support of its teachers and the preparedness of its graduates?
- 5) Do graduates persist in STEM teaching positions in high-needs schools over the course of the grant? Why, or why not?
- 6) What are graduates’ level and quality of participation in and their perception of the teacher induction program?
- 7) How do the graduates’ STEM curricular foci and instructional practices compare to those emphasized in the residency program and to those of comparable SPD teachers who did not come from the residency program?
- 8) How much gain, if any, do students of residency versus non-residency teachers report in science, engineering and mathematical practices specified in NGSS and CCSS? How do results on the Pennsylvania state tests compare? Similarly, how do results on the district evaluation system compare?

#### *Internal Evaluation Plan*

The College of Education at Temple already has in place several rubrics to assess the quality of a prospective teacher’s development during a preparation program. TTR will improve upon these to create methods of assessing the residency’s curriculum, clinical experience, preparation for PA Core Standards, and post-residency induction program.

During the first semester of their residency year, residents must achieve a rating of “meets expectations” on an Initial Performance Assessment (IPA), a state- and university-required test which gauges the extent to which a student: 1) knows the content they will teach; 2) can teach that content; and 3) embodies the attributes required of professional educators. The IPA tests

students' demonstration of Temple's six performance standards. In their final semester, residents are again assessed, with increased expectations, in a Summary Performance Assessment (SPA), and must earn a "meets expectations" rating. The IPA and SPA are conducted by full-time TTR faculty who consider the efficacy of the resident's teaching as well as the quality of his/her portfolio. A portfolio will include representative lesson plans, a case study of a student, assessment results, and additional work suggested during our planning stage with UTRU.

While working in high-need classrooms with an effective mentor-teacher, residents will be frequently observed by their mentor-teacher, TTR faculty, and the Program Manager. During the residency year, while placed in schools, residents will get rated 8 times by the university faculty and mentor-teachers using Teacher Observation Reports and twice more by faculty using the State's mandated rating form (PDE 430). These assessments capture performance on a rubric that incorporates program performance standards and the indicators of the Danielson Framework – a research-driven set of performance criteria that constitute high-quality teaching.

Additionally, the Program Manager will visit host classrooms and assess the productivity of the mentor-resident collaboration according to a rubric that will be developed in the planning year of the program. This rubric will examine mentors' and residents' co-teaching abilities, the quality of the feedback the mentor is providing to the resident, and the observable impact the clinical experience is having on the resident's instruction. This wide net of observation, communication, and feedback will support fast improvements in resident teaching while giving our program the kind of frequent feedback needed to make continual adjustments to our program design and implementation methods.

Finally, during the two-year induction period, residency graduates will enter high-need classrooms as novice teachers. The TTR Program Manager will maintain communication with

school principals during this time to ensure the ongoing success of TTR graduates and offer intensive support to those who need it. During this time, the novice-teacher will be evaluated by PA Teacher Effectiveness Tool, an assessment method used by the SDP that is based, in part, on the Danielson Framework.

*External Evaluation – WestED*

As the external evaluator, WestEd’s overall level of effort will emphasize summative evaluation that tracks key performance measures and sheds light on what factors influence the values obtained in this program. Working with TTR program staff, WestEd will establish performance measures consistent with those emerging as standards within the field of teacher residency programs, including an assessment of the impact of the program on student outcomes. Therefore this evaluation will be highly informed by the standards of UTRU, which already supports over 20 UTR programs serving high-need school districts across the country.

TTR’s Senior Evaluation Advisor, Dr. Joseph DuCette will coordinate with the WestEd evaluation PI, Dr. Ted Britton – the Associate Director of WestEd’s STEM program and a leader of research and evaluation projects in this area – in the creation and implementation of a rigorous evaluation process that will employ a variety of data collection methods, both qualitative and quantitative, to address the specific study questions. Qualitative sources will include observations, document inspection, one-on-one interviews, focus group discussions, and participants’ conversations and work in the Edmodo online platform. Quantitative data will be collected through surveys and data sets regarding the qualifications, later certification, and performance of residency participants. Additionally, the WestEd evaluation will include formative tasks early in the award period to provide our partnership with independent information that can inform the improvement of key project elements such as recruitment,

coursework, and training. While WestEd’s California-based STEM Program’s evaluation unit leads the work, evaluators based in its Washington DC office will conduct the site-based work in the Philadelphia area. As TTR evolves and expands over the five-year award period, so too will its metrics of success and its methods of evaluating for them.

Beginning in Year 1, as staff develops the program courses, residency placements and processes, and recruiting and selection procedures, WestEd evaluators will use detailed understanding of these and other evolving program elements toward refining details of the five-year evaluation plan. In particular, evaluators will assist program staff in fleshing out detailed measures of performance and improvement.

Further, WestEd will establish a corresponding plan and division of labor for both internal evaluators (Temple staff) and external evaluators (WestEd) to immediately and continuously acquire, audit, and analyze data sources to support the performance measures.

In the summer of Year 1, WestEd will establish an online survey for mentor-teachers to take at the end of the first Summer Institute, a professional development opportunity that prepares mentor-teachers for hosting residents in their classrooms. Questions in this survey will focus on factors such as participants’ perception of the usefulness of the training for their role in working with residents. The results will provide feedback that staff can use to inform subsequent trainings throughout the year, and the following summer. WestEd will also survey residents, to capture their perceptions of the effectiveness of the summer training completed prior to entering the residency year.

During this first year, WestEd will initiate an ongoing evaluation of the TTR partnership that will evolve over the award period. This will examine the effectiveness of the collaboration between three focal Temple colleges, Education, Engineering, and Science and Technology in

the recruitment of highly-qualified and diverse applicants. The Evaluation PI, Britton, will draw upon his prior work as external evaluator for an NSF-funded project at the Association of Public and Land-grant Universities (APLU) wherein 25-member institutions forged stronger inter-college relationships in order to improve STEM teacher preparation on their campuses.

Additionally, the evaluation will assess how closely Temple University is working with the SDP in the design of the program, the selection of residents and mentor-teachers, increased applications to the district, and future hiring percentages.

In Year 2 and on, WestEd will examine the characteristics of recruited and selected participants (mentors and residents) against performance goals established by the project team. Through surveys – which will be informed by early interviews of program participants – we will explore the perceived efficacy of residents and mentors and will gather key facts regarding their status. Resident surveys will also explore what factors influenced their application to the program, the status of their examination and credentialing process, and their perceptions of the effectiveness of the residency program.

Additionally, WestEd will survey principals at schools where residents are placed to determine how well the program is aligning with their needs and to investigate the impact the program is having on the school building as a whole.

Participants' engagement in conversation and work in the online Edmodo platform affords the evaluation another potent source of data to provide insights on their efficacy, competency and intentions, especially when triangulated with survey data. The specific expectations of Edmodo, which will be developed more fully in the planning year, will inform these surveys.

In Year 3 and on, as TTR graduates begin entering classrooms as novice teachers, the evaluation will broaden its scope to assess certification passing rates as well as the success and

the support offered by the induction program. TTR graduates will be surveyed about their current experience as teachers of record, their updated views of the value of their preparation program, their intention to continue teaching, particularly in high-need schools, and their perceptions of the usefulness of the teacher induction program. These surveys will use pre-post- question constructions to elicit graduates' retrospective assessments of their ability before and after the school year in specific science and mathematical practices, as specified by the Next Generation Science Standards and Common Core Standards.

School principals who have hired residency graduates will be surveyed on the perceived difference in teaching quality between TTR graduates and other novice teachers. School administrators will be asked to identify non-residency-prepared teachers of the same courses serving similar students for evaluators to constitute a matched sample. Depending upon the status and nature of district- and state-standardized mathematics and science testing in the later grant years, comparative analysis of students test scores would then be available for examination.

For appraising the induction process, Evaluation PI Britton will draw upon a ten-year program of study, funded by a \$5M sequence of NSF grants, that examines STEM teacher induction. This evaluation will assess: 1) the comfort level of the graduates within their new environments; 2) the efficacy of monthly cohort meetings in addressing concerns; 3) whether ongoing engagement with mentors has continued both participants' professional development; and 4) the effectiveness of TTR improvement plans in intervening with struggling graduates.

Finally, WestEd will assess teacher retention percentages and compare the retention of residents in the first year – both intended and unintended attrition – vs. other novice teachers in similar schools.

During years 4 - 5, as new residency cohorts continue entering the classroom, evaluators will initiate assessments of residency graduates' STEM teaching and its effects on their students. These teaching assessments will be informed by the updated PA Core Standards and will incorporate off-the-shelf questionnaires such as the Survey of Enacted Curriculum and instructional practices and will be augmented by and triangulated with observations of teachers theoretically sampled to represent key variables identified by the staff. During this time, WestEd analysis of survey and observation data will focus on the extent to which residency graduates incorporate the curricular foci and advanced instructional practices offered in their teacher preparation and induction programs, as well as their attribution of relative influences on their teaching. Currently, the evaluation PI, Britton, is conducting a similar investigation for grantees in NSF's Noyce Scholars program.

During this time, the evaluator will examine whether students within TTR graduate STEM classrooms have increased opportunities to learn. This analysis will focus on comparing student reports of teacher instructional practices to teacher survey reports. It will also examine teacher evaluation data as an indicator of where residents are performing better and worse than other novice teachers. We will use that data to inform program design and accountability. Finally WestEd will compare student growth data across classrooms led by program graduates and other novice teachers to determine whether TTR better prepares teachers for the rigors of high-need STEM classrooms.

In these years, as TTR transitions into a viable and sustainable source of high-quality, middle-grades STEM-area teachers, our evaluation plan will use data from SDP and APS to determine how the program is changing the teaching population within these schools. Specifically, WestEd will examine whether the partnering schools report increased percentages

of highly-qualified teachers with training and content-expertise specific to their teaching field, with adeptness in technology use in the classroom, and with a comprehensive understanding of the PA Common Core standards of curriculum. WestEd will also look at ongoing student data within mentor-teacher classrooms and the host schools where the program has been implemented. Appendix K lists potential evaluation questions as well as the data sources that may be used in their assessment.

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