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**Adjusted Allocation** | 0.00

**Remaining** | -2,332,675.00
A) APPLICANT INFORMATION - General Information, Experience and Capacity

1. Project Title: Building Leaders in STEM

2. Executive summary: Provide an executive summary of your project proposal and which goal(s) in question 11 you seek to achieve. Please limit your responses to no more than three sentences.

The STEM Center at Bethel-Tate Local Schools is a blended reality classroom that challenges gifted students and has demonstrated success in raising achievement in fifth grade math and science. This program has received local, state, and national accolades and many schools desire to replicate this program in their districts. This grant funds the purchase of STEM equipment, the training of teachers and administrators, and development of curriculum units to replicate this program in 14 additional schools located in 6 different counties, including schools with Appalachian students, schools with rural populations, affluent schools, and schools with a high percentage of low socio-economic students.

3. Total Students Impacted:

4. Lead applicant primary contact - Provide the following information:

   First Name, Last Name of contact for lead applicant: Melissa Kircher

   Organizational name of lead applicant: Bethel-Tate Local Schools

   Unique Identifier (RN/Fed Tax ID): 046379

   Address of lead applicant: 675 W. Plane St., Bethel, OH 45106

   Phone Number of lead applicant: 513-734-2261

   Email Address of lead applicant: kircher_m@betheltate.org

5. Secondary applicant contact - Provide the following information, if applicable:

   First Name, Last Name of contact for secondary applicant: Matthew Earley

   Organizational name of secondary applicant: Williamsburg Local Schools

   Unique Identifier (RN/Fed Tax ID): 046367

   Address of secondary applicant: 549 W. Main Street Williamsburg, OH 45176

   Phone number of secondary applicant: 513-724-3077

   Email address of secondary applicant: earley_m@burgs.org

6. List all other participating entities by name: Provide the following information for each additional participating entity, if applicable: Mention First Name, Last Name, Organizational Name, Unique Identifier (RN/Fed Tax ID), Address, Phone Number, Email Address of Contact for All Secondary Applicants in the box below.

7. Partnership and consortia agreements and letters of support - (Click on the link below to upload necessary documents).

   Letters of support are for districts in academic or fiscal distress only. If school or district is in academic or fiscal distress and has a commission assigned, please include a resolution from the commission in support of the project.

8. Please provide a brief description of the team or individuals responsible for implementation of this project including relevant experience in other innovative projects. You should also include descriptions and experiences of partnering entities.

   This project resulted from a collaboration of a team of five gifted coordinators, a math curriculum specialist and a science curriculum specialist (the “Planning Team”). The Planning Team members possess strong backgrounds in science, critical thinking, math, and STEM and bring a diverse array of expertise to the project that will be needed to support a successful STEM program. The project director, Amy Bain, is the gifted coordinator for the successful Bethel-Tate STEM program that is being replicated in the other schools. In addition, Mrs. Bain coordinates the Clermont County High School Gifted Program, which involves gifted students from six districts and developed Academic Adventures, an afterschool STEM program for students in grades 2-6, again involving multiple districts. Establishing these programs involved the procurement of several grants and the implementation of innovative projects to several districts at once. Mrs. Bain has presented her work in blended learning and gifted services at the national, state, and local levels and serves as the Region V representative of the Ohio Association for Gifted Children and a president for the Southwest Ohio Coordinators of Gifted.

   Mrs. Bain is heavily involved in the development of STEM curriculum through the creating of units taught at the STEM Center and served as the Sixth Grade Team Leader for developing curriculum and science lessons for the Southwest Ohio Science Institute. The science and math consultants bring a wealth of expertise. Meri Johnson, the science consultant and site coordinator for the South region, has been involved in several state and regional programs. Mrs. Johnson was the local chairman for the Regional NSTA Conference recently held in Cincinnati and coordinated eleven committees such as registration, volunteers, facilities, and hospitality. Mrs. Johnson was the SECO Conference chairman for 2013 and is serving in that role again in 2014. Mrs. Johnson was the co-director or the Southwest Ohio Science Institute which impacted 800 teachers during its five summers. The new STEM Institute, offered in June 2013, involved professional development for 80 math and science teachers and was treated by Mrs. Bain and Mrs. Johnson. Both Mrs. Johnson and Mrs. Barb Weidus, the math consultant, have been involved on multiple state level programs including standards writing teams, advisory teams, and range finding committees. Mrs. Weidus has developed numerous workshops such as Fraction Bootcamp that are delivered to area schools as well as serving as a math coach. Other member of the team include: Deborah Glynn, gifted coordinator for Springboro Schools, Karen Quals, retired gifted coordinator for Hamilton Schools, Laurie Frank, retired gifted coordinator for Sycamore Schools, and Cathy Reed, gifted coordinator for Hamilton County ESC. These gifted coordinators have implemented numerous projects such as “Destination Imagination”, the “Ohio Summit”, “Battle of the Brains”, and “Research Expo” while coordinating services in their respective schools. In addition to these student programs, team members have extensive experience as leaders in professional development, including OTEAS, Diagnostic Math Assessment, Project Impact I and II, Discovery, Brain-Based Learning, Differentiation, and numerous math and science content workshops. These mentors, along with purchased services from curriculum and technology consultants, provide the professional development and coaching in the content areas.

B) PROJECT DESCRIPTION - Overall description of project and alignment with Outcomes

9. Which of the stated Straight A Fund goals does the proposal aim to achieve? - (Check all that apply)

   Student achievement
   Spending reductions in the five-year fiscal forecast
   Utilization of a greater share of resources in the classroom

10. Which of the following best describes the proposed project? - (Select one):

   New - never before implemented
   Existing and research-based - never implemented in your district or community school but proven successful in other educational environments
   Mixed Concept - incorporates new and existing elements
for the BLIS project. The BLIS project addresses three needs: (1) provide the technology to implement a blended learning program, (2) provide the curriculum and on-line courses for the gifted students, and (3) provide the professional development for teachers in both technology and curriculum. When each STEM Center is physically created and the gifted teachers are skilled in STEM strategies, the program will be implemented to impact the gifted students in fifteen participating districts. The fifteen participating districts have been split into two regions, a South region (Butler, Warren, Hamilton and Clermont counties) and a North region (Logan and Shelby counties). These mentors have been assigned to different schools. Each region has a site manager who works with the project director to coordinate the professional development, acquisition of technology, and purchasing of materials.

In January 2014, five days of professional development involving STEM strategies and technology applications will be delivered to the gifted teachers. This extensive professional development increases the likelihood of success for building the skills and content knowledge necessary to become STEM teachers. An online professional learning community provides ongoing collaboration between the schools as teachers discuss the training and try strategies with current students. To build a broader understanding of the professional STEM education, participants attend either the national math or science conference. In June 2014, these gifted teachers and mentors meet for two weeks of intensive training. During this time, teachers are provided with the resources (including written curriculum, digital and paper textbook materials, and digital resources) necessary to begin the STEM instruction in the science materials and will participate in an expanded capacity as they collaborate with the fifth grade math and science teachers at their schools. These math and science teachers will have training in blended learning units that complements the gifted teachers and incorporates the New Ohio Learning Standards. Coaches specializing in math and science will collaborate with these teachers every other week to reinforce the strategies. By working together, this multi-county, multi-school collaboration, gifted teachers will be prepared to begin a gifted program that emulates the successful STEM program currently in place in order to raise student achievement in math and science at their own schools. The learning that takes place from January through June will provide a deep sustained learning, build a network of knowledgeable colleagues, and create a professional learning community that will continue in future years.

C) SUSTAINABILITY - Planning for ongoing funding of the project, cost breakdown

13. Financial Documentation - All applicants must enter or upload the following supporting information. Responses should refer to specific information in the following documents when applicable:

a. Enter a project budget
b. Upload the Financial Impact Template forecasting the expected changes to the five-year forecast resulting from implementation of this project. If applying as a consortia or partnership, please include the five-year budget for each of the districts, consortia or school district.

c. Provide details on the costs of items included in the budget (i.e. staff counts and salary/benefits, equipment to be purchased and cost, etc.).

14. What is the total cost for implementing the innovative project?

2,323,675.00 * Total project cost

* Provide a brief narrative explanation of the overall budget. The narrative should include the source and amount of other funds that may be used to support this concept (e.g., Title I funding, RTT money, local foundation support, etc.), and provide details on the cost of items included in the budget (i.e. staff counts and salary/benefits, equipment to be purchased and cost, etc.).

15. What new/recurring costs of your innovative project will continue once the grant has expired? If there are no new/recurring costs, please explain why.

0.00 ** Specific amount of new/recurring cost (annual cost after project is implemented)

* Narrative explanation/rationale: Provide details on the cost of items included in the budget (i.e. staff counts and salary/benefits, equipment to be purchased and cost, etc.). If there are no new/recurring costs, please explain why.

16. Are there expected savings that may result from the implementation of the innovative project?

1,311,000.00 ** Specific amount of expected savings (annual)

* Narrative explanation/rationale: Provide details on the anticipated savings (i.e. staff counts and salary/benefits, equipment to be purchased and cost, etc.)
achievement. These teachers participate in professional learning communities after the grant ends, which saves money as teachers receive professional development without additional costs into the 2014 school year. (One day of professional development = $200 per teacher + sub fee of $100 = $300/teacher). These trained gifted teachers can provide professional development in upcoming years for the math/science teachers in their districts with the school fee of $200/day for 30 days. Larger districts would save $600,000 for math and science teachers in five grade. Many of these strategies can be used for other grade levels, making the possible savings even greater. - Computers can also be used for state testing, saving the districts the need to purchase additional computers. ($20,000) - Each district receives curriculum that introduces blended learning and on-line courses that will be perpetual with no licensing fees. - Costs of $10,000 - $15,000 (for the STEM classroom and the district(s)) and work collaboratively to coordinate the professional development for the gifted teachers. Training will be reserved for the professional development and for storage of purchased materials. Services for professional development, program evaluation, unit development will be contracted. Bids from vendors will be collected in preparation of the equipment acquisitions.

Planning for this project began on October 5, when the seven members of the Planning Team met to discuss the BLIS grant and how it would impact student achievement in different districts around Ohio. Participating districts have been matched with a mentor who oversees the implementation of the program in their district(s). The mentors are primarily the gifted coordinators who are already familiar with the goals and core of the BLIS program. During the initial planning, the mentoring team (the STEM classroom at the Tate school district (2013-2014 school year) and the math/science teachers) must begin. Math and science teachers collaborate on a weekly basis. - Teams for unit development will be formed and unit development begins. February 2014 - Day Two and Day Three: Teachers develop curricular unit plans and will be reviewed by university content specialists. Mentors will conduct live discussions on STEM strategies, field visits to districts to ascertain specific technology needs and preferences in preparation of tablet and computer purchasing. - Unit two development begins. March 2014 - Day Four of the teacher professional development is delivered focusing on critical thinking. Weekly on-line discussions on critical thinking. - Equipment will be purchased. - Unit three development begins. - Mentors meet to evaluate progress of the unit and make any changes to the project. - Unit four development begins. - Professional development for the technology staff for the newly purchased devices occurs in April 2014. As equipment arrives, technology staff configure devices and upload appropriate software. - Information collected from the mentors will be used to determine specific training session and unit instruction for both face-to-face lessons and on-line lessons. Teams of mentors will coordinate debriefing sessions and discussions with the teachers. Weekly on-line discussions on STEM programs. - Unit Four development begins. - Professional development for the technology staff for the newly purchased devices occurs in April 2014. As equipment arrives, technology staff configure devices and upload appropriate software. - Information collected from the mentors will be used to determine specific training session and unit instruction for both face-to-face lessons and on-line lessons. Teams of mentors will coordinate debriefing sessions and discussions with the teachers. Weekly on-line discussions on STEM programs.

The compiled data will be provided by the school districts for analysis purposes without any individual students being identified by name and all results will be reported in aggregate. For the Bethel Tate School the gifted teachers and students, the program will focus on the gifted students' progress and unit development. Modification will be made for upcoming professional development to address teacher needs, additional support for unit can be ascertained, and technology support will be determined to address those issues. April 2014 - Development of a broader understanding of a STEM program will occur through the attendance of either the NIST or NCTM conferences. Teams of mentors will coordinate debriefing sessions and discussions with the teachers. Weekly on-line discussions on STEM programs. - Unit Four development begins. - Professional development for the technology staff for the newly purchased devices occurs in April 2014. As equipment arrives, technology staff configure devices and upload appropriate software. - Information collected from the mentors will be used to determine specific training session and unit instruction for both face-to-face lessons and on-line lessons. These trained gifted teachers can provide professional development in upcoming years for the math/science teachers in their districts with the school fee of $200/day for 30 days. Larger districts would save $600,000 for math and science teachers in five grade. Many of these strategies can be used for other grade levels, making the possible savings even greater. - Computers can also be used for state testing, saving the districts the need to purchase additional computers. ($20,000) - Each district receives curriculum that introduces blended learning and on-line courses that will be perpetual with no licensing fees. - Costs of $10,000 - $15,000 (for the STEM classroom and the district(s)) and work collaboratively to coordinate the professional development for the gifted teachers. Training will be reserved for the professional development and for storage of purchased materials. Services for professional development, program evaluation, unit development will be contracted. Bids from vendors will be collected in preparation of the equipment acquisitions.

The BLIS project provides the equipment necessary without new or recurring costs after the grant. For small districts with five students, this amounts to $18,000. Larger districts would save even more. Many of these strategies can be used for other grade levels, making the possible savings even greater. - Computers can also be used for state testing, saving the districts the need to purchase additional computers. ($20,000) - Each district receives curriculum that introduces blended learning and on-line courses that will be perpetual with no licensing fees. - Costs of $10,000 - $15,000 (for the STEM classroom and the district(s)) and work collaboratively to coordinate the professional development for the gifted teachers. Training will be reserved for the professional development and for storage of purchased materials. Services for professional development, program evaluation, unit development will be contracted. Bids from vendors will be collected in preparation of the equipment acquisitions.
20. Describe the rationale, research or past success that supports the innovative project and its impact on student achievement, spending reduction in the five-year fiscal forecast or utilization of a greater share of resources in the classrooms.

This has recognized the need for innovation in STEM skills in order to build a workforce for the 21st century. However, current trends in Ohio show our students are well below the expectations of the marketplace. Research by the Greater Cincinnati STEM Collaborative reports that 80% of jobs created in the next decade will require math and science skills, 52% of high-school seniors taking the ACT exam were ready for college level science, and 84% of U.S. middle-school students say they would rather clean their room, eat their vegetables, or take out the garbage than learn math or science. Areas such as Appalachian Ohio are without local museums to visit, local companies that involve STEM, and most importantly a school that introduces STEM at an early age. Students in small schools and rural areas lack the opportunity to learn about STEM careers and the skills necessary for building tomorrow’s leaders. This project addresses the need for introducing STEM to students at an early age and challenging them to use math and science in a problem-solving format.

In September 2010, a new program was created for serving gifted students. Before developing the program, best practices on gifted programming were researched. Research by Dr. Karen Rogers was pivotal when developing the program. (Dr. Rogers is a professor of Gifted Studies in the Department of Special Education and Gifted education at the University of St. Thomas in Minneapolis, Minnesota.) Results of her studies showed that (1) Gifted students served in a resource room demonstrated an effect size of .49 years in math and science standards and .44 years for math and science .44 years for math and science. (2) If students are provided a daily challenge in their area of talent, the effect is 1.30 to 7 year’s additional growth. (3) The elimination of extra stress and review showed a greater accuracy retained in information and a greater focus on new learning. (4) Exposure to content beyond grade level showed 1.0 to 1.5 additional grade equivalent months growth. Based on this research, a blended learning program was created that included resource room time, an on-line learning community, and a curriculum that exceeded grade level expectations. The new curriculum resulted in significant increases in student achievement in math and science. When performing an analysis of student scores, the disparity in scores of 8.69 points above the predicted scores while students not served had scores that averaged -21.2 points. (These students have the same teachers for science the other four days each week.) Last year, it was decided to increase the programming offered and the students served as a result of STEM Center students being able to achieve more than originally predicted.

21. Is this project able to be replicated in other districts in Ohio?

Yes

22. If so, how?

The BLIS Project Centers around replicating a high quality in other locations. The practices that have been development for the participants of this grant can be used to initiate similar programs in rural, city, or suburban locations. After this project is evaluated, revisions can be incorporated to fine tune the implementation process for other districts.

23. Describe the substantial value and lasting impact that the project hopes to achieve.

The impact that the STEM Center has had at Bethel-Tate Schools is substantial. Students are demonstrating higher achievement scores in math and science, they are building thinking skills, and they are setting higher goals for themselves. Students have developed a “growth mindset” that challenges them to tackle problems that they might not be able to solve initially or that have more than one answer. For example, the students at Bethel-Tate Schools worked collaboratively at a young age to design, create, and build a bridge that they could present during their junior year. Students have learned through experience that they can be challenged at the highest level and subsequently be successful and not feel like they have become discouraged or have not met expectation.

One example of this can be seen by the number of students who enter college to study engineering compared to those that complete the engineering program. According to research by Dr. Michell J. Chang at UCLA* [Studies have found that roughly 40 percent of students planning engineering and science majors end up switching to other subjects or failing to get any degree. That is, at a slow rate of only 60 percent of students enter college with the intention of majoring in mathematics or science. In 8 to 9 years, only 32 percent of those who register for calculus as first-year students complete a major in engineering and science.]*

As part of the STEM program, students have discussions led by Child Focus as they eat lunch together to talk about issues facing gifted students such as: not showing off, fitting in, procrastination, organizational skills, and other issues students bring to the discussion. This will also be used as a model for planned discussions in other STEM Centers. In addition to these discussions, lessons and activities are planned that require gifted students to collaborate and share leadership roles. When working on communication skills, gifted students practice the listening part of communication and experience learning from others. Mastering these social skills is a goal that is incorporated into the STEM program. A survey will be developed based on focus groups at the Bethel-Tate STEM Center that will be administered to other students to plan similar lessons on social skills at the new schools.

24. What are the specific benchmarks related to the fund goals identified in question 9 that the project aims to achieve in five years? Include any other anticipated outcomes of the project that you hope to achieve that may not be easily measured.

The primary goal of this project is to increase student achievement in math and science for fifth grade gifted students in 15 districts as evidenced in exceeding their expected scores. In beginning in January, teachers collaborate on the improvement of their students’ math and science skills through critical thinking and teaming of STEM strategies. Teachers will be trained on implementing the STEM strategies learned through the professional development and the incorporation of technology. This will be completed through the establishment of a STEM Center, the professional development, and collaboration of teachers in their respective districts. As a result, teachers can become more comfortable with STEM integration and are prepared for the next school year.

The new benchmark for the students will be measured at the STEM Center will be evaluated using case study methodology to identify promising practices. At the end of the 2013-2014 academic year, Bethel teachers and mentors can present to others participating in the project what worked and how to get the most out of the mentorship-teaching relationships. The content from these presentations will be used to develop mentor training materials. The teachers implementing the Bethel-Tate STEM Center will be interviewed, via a discussion group, and their responses will be used to create a survey that can be administered to students as other STEM Centers are implementing the program. Teachers will be given feedback from colleagues in the Center they are participating in and get additional training.

25. Describe the plan to evaluate the impact of the concept, strategy or approaches used.

* Include the method by which progress toward short- and long-term objectives will be measured. (This section should include the types of data to be collected, the formative outputs and outcomes and the systems in place to track the program's progress).

* Include the method, process and/or procedure by which the program will modify or change the program plan if measured progress is insufficient to meet program objectives.

Using a framework for evaluation and feedback, the BLIS project team and participants, providing continuous improvement for the teachers regarding identified knowledge and skills, and for the question regarding attainment of project goals and overall impacts discussed earlier in this proposal. Multiple measures evaluate project activities effectiveness, overall success of professional development and teacher-mentor relationships and ultimately how these changes in teacher practices impact students’ STEM achievement as described in section 18. Theory suggests that as teachers see student results they will desire PD that supports these gains. Therefore, the evaluation will provide the project team and participants with data indicating the extent to which project goals are met on a regular basis. This includes pre-surveys prior to any activities, survey and interview data collected after the PD leading to adjustments being made in the spring activities, late spring data that will help inform STEMDictionary activities, and an end of the summer evaluation that will help define the academic year implementation details. Teachers and students using the Bethel STEM Center will be evaluated using case study methodology to promising practices. At the end of the 2013-2014 academic year, Bethel teachers and mentors can present to others participating in the project what worked and how to get the most out of the mentorship-teaching relationships. The content from these presentations will be used to develop trainig materials gathered from the teachers and mentors.

Using the Bethel-Tate STEM Center will be interviewed, via a discussion group, and their responses will be used to create a survey that can be administered to students as other STEM Centers are implementing the program. Teachers will be given feedback from colleagues in the Center they are participating in and get additional training. These exciting results from serving gifted students through STEM served as the inspiration of this project in order to share this program with other districts.

By virtue of applying for the Straight A Fund, all applicants agree to participate in the overall evaluation of the Straight A Fund for the duration of the evaluation timeframe. The Governing Board of the Straight A Fund reserves the right to conduct evaluation of the plan and request additional information in the form of data, surveys, interviews, focus groups, and any other related data to the legislature, governor, and other interested parties for an evaluation of the Straight A Fund.

PROGRAM ASSURANCES: I agree, on behalf of this applicant agency and/or all identified partners to abide by all assurances outlined in the Assurance section of the CCP. In the box below, enter "Accept" and indicate your name, title, agency/oragnization and today's date.

Accept Melissa Kircher, Superintendent Bethel-Tate Local Schools October 25, 2013