Budget

Sinclair Community College (063362) - Montgomery County - 2014 - Straight A Fund - Rev 0 - Straight A Fund - Application Number (320)

U.S.A.S. Fund #:
Plus/Minus Sheet (opens new window)

Object Code / Purpose Code	Salaries 100	Retirement Fringe Benefits 200	Purchased Services 400	Supplies 500	Capital Outlay 600	Other 800	Total
Instruction	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Support Services	23,885.00	5,484.00	300.00	1,500.00	0.00	0.00	31,169.00
Governance/Admin	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Prof Development	0.00	0.00	131,250.00	927,245.00	0.00	0.00	1,058,495.00
Family/Community	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Safety	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Facilities	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Transportation	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	23,885.00	5,484.00	131,550.00	928,745.00	0.00	0.00	1,089,664.00
						Adjusted Allocation	0.00
						Remaining	-1,089,664.00

Application

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Applicants shall respond to the prompts or questions in the areas listed below in a narrative form.

A) APPLICANT INFORMATION - General Information, Experience and Capacity

1. Project Title:Project Lead The Way-Ohio Elementary Lessons Demonstration Project

2.Executive summary: Provide an executive summary of your project proposal and which goal(s) in question 9 you seek to achieve. Please limit your responses to no more than three sentences.

This demonstration project will beta test the new Project Lead the Way Elementary Lessons in Kindergarten- Grade 5 classrooms and create a new model for cost-effective delivery of professional development for elementary school teachers. Eight elementary schools in three types of Ohio school districts-large urban, suburban, and small rural, will be selected as test sites for this demonstration project. After the grant period, the long-term goal is to expand the PLTW Elementary Lessons program to elementary schools across Ohio.

5960 3. Total Students Impacted:

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

First Name, last Name of contact for lead applicant: Steven Wendel

Organizational name of lead applicant: Sinclair Community College

Unique Identifier (IRN/Fed Tax ID): [redacted]

Address of lead applicant: 444 West Third Street, Dayton OH 45402-1460

Phone Number of lead applicant: 937-512-2841

Email Address of lead applicant: steven.wendel@sinclair.edu

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

First Name, last Name of contact for secondary applicant: NA

Organizational name of secondary applicant: NA

Unique Identifier (IRN/Fed Tax ID): NA

Address of secondary applicant: NA

Phone number of secondary applicant: NA

Email address of secondary applicant: NA

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 (IRN/Fed Tax ID), Address, Phone Number, Email Address of Contact for All Secondary Applicants in the box below.

NA

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.

* If a partnership or consortium will be established, please include the signed Straight A Description of Nature of Partnership or Description of Nature of Consortium Agreement.

UploadGrantApplicationAttachment.aspx

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

Sinclair Community College is the Ohio Affiliate (PLTW Ohio) for the Project Lead The Way (PLTW) National network. Currently PLTW Ohio works with 150 school districts to provide and support PLTW Gateway to Technology offered in middle schools, and the PLTW pathways - PLTW Pre-engineering and PLTW Biomedical Sciences - offered in high schools. In its role as PLTW Ohio, Sinclair acts as the * Conduit for implementation of PLTW programs in Ohio schools * Provider of PLTW teacher professional development * Distributor of knowledge and best practices from other PLTW programs across the nation Sinclair Community College has extensive experience in managing large innovative federal, state, and privately-sponsored grants. Sinclair has managed over $150 million for 3,000 projects from, for example, the U.S. Department of Education, U.S. Department of Labor, U.S. Department of Health and Human Services, the National Science Foundation, and the Bill & Melinda Gates Foundation. In addition, Sinclair has managed numerous NSF faculty professional development grants on the following topics: advanced manufacturing, advanced automotive hybrid technology, project lifecycle managing using the construction of a solid body guitar, work cell simulation, rigorous educational research methodologies, and chemistry instrumentation. Steve Wendel (Project Director) has been the Director of PLTW Ohio since 2008, as well as the Principal Investigator (PI) for the National Center for Manufacturing Education funded by the National Science Foundation (2007-2013). His experience in managing the National Center for Manufacturing Education solidified Sinclair as a national leader in manufacturing education. In addition, he has lead innovative grant funded projects such as the Ohio Project Lead The Way Biomedical Sciences Expansion project (Ohio Board of Regents 2010-2011, which expanded engaging, project-based biomedical educational opportunities to high school teachers and their students through the Project Lead the Way Ohio Affiliate). He is also serving as the PI for Leadership Capacity Building for Manufacturing and Manufacturing-related Programs (National Science Foundation 2013-2016, which will provide leadership development based on advancements reported in the current manufacturing and engineering education literature); and is the Co-Principal Investigator on the Virtual Online Tensile Strength Testing Simulation (National Science Foundation 2013-2016, which will develop and disseminate an open source, online virtual tensile strength testing simulation to be utilized by undergraduate engineering technology students and pre-engineering high school students in the Project Lead the Way network of 4,215 schools nationwide).

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)

- [x] 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 researched-based - never implemented in your district or community school but proven successful in other educational environments
- [x] Mixed Concept - incorporates new and existing elements
- [ ] Enhancing/Scale Up - elevating or expanding an effective program that is already implemented in your district, school, or consortia partnership

11. Describe the innovative project.

Project Lead The Way-Ohio Elementary Lessons Demonstration project will build on the proven STEM-focused Project Lead The Way (PLTW) curriculum and professional development model. This pilot project will beta test (1) new PLTW Elementary Lessons in classrooms in Kindergarten - Grade 5, and (2) a new model for cost-effective delivery of professional development for elementary school teachers. Elementary schools in three types of Ohio school districts - large urban, suburban and small rural - will be selected to be the test sites for this pilot. Incorporating the strengths of the current middle and high school PTLW programs, as well as lessons learned from a 2013-2014 pilot test of PLTW Elementary Lessons managed by PLTW-National in 43 schools across 23 states, this six-month project will: * Rollout the new PLTW-OH Elementary Lessons Program to selected urban, suburban, and small rural school districts * Facilitate participation by selected elementary schools in PLTW Elementary Lessons Program by covering the start-up costs for the 2014-2015 school year, including expenses for curriculum, Learning Management System software, supplies and materials, and tablet computers for teachers and classrooms * Develop and document an effective, cost efficient and scalable model for delivery of professional development to support engineering design and STEM learning experiences with Project Lead The Way Elementary Lessons in three different types of Ohio school district - large urban, suburban and small rural The new PLTW Elementary Lessons curriculum is based on the engineering design process used in PLTW courses in middle and high schools. The activities pose real world problems and challenge children to seek solutions using the design process model ask, explore, model, evaluate, and explain, stimulating critical thinking, problem solving, integration of knowledge, and collaboration. The lesson materials for the activity oriented curriculum are available as an electronic

application, so students will work in teams on tablet computers to learn how technology is used in engineering to solve everyday problems. PLTW Elementary Lessons include four modules per grade level. The first module for each grade focuses on the design process. With each module, students will engage in the design process, building on prior knowledge, and developing foundational skills to solve more complex problems. They will explore using math and science concepts, model their solutions with VEX IQ robotics equipment designed for elementary school children, and use oral and written skills to evaluate and explain. The Elementary Lessons curriculum is standards-based, aligned with both Common Core and Next Generation Science Standards, and customizable so schools can meet their curricular needs. Intensive teacher professional development is the foundation of the success of the current PLTW middle and high school programs. Based on the proven PLTW three-phase approach - Readiness, Core and Ongoing Training - combined with a train-the-trainer model and collaboration with area Educational Service Centers and participating school districts, this project will design and implement different delivery models for professional development for different types of school districts. All models will meet the Ohio Standards for the Teaching Profession and Professional Development (approved by Ohio State Board of Education, October 2005). The project will test and evaluate each model to assess the effectiveness and cost efficiency. The professional development models created and evaluated in this project will differ from models currently in use. Results will be compared to results from PLTW professional development for middle and high school teachers and from the 2013-2014 PLTW Elementary Lessons PLTW-National pilot test, providing critical information to maximize effectiveness and minimize travel expense as the program is expanded across the state.

12. Describe how it will meet the goal(s) selected above. - If school/district receives school improvement funds/support, include a brief explanation of how this project will advance the improvement plan.

The two-fold impact of student engagement with the activities-projects-problem-based PLTW Elementary Lessons curriculum, and the increase in elementary teachers' confidence and competence in teaching math and science concepts will result in an increase in student achievement in math and science over a period of five years. The Report by the President's Council of Advisors on Science and Technology (Prepare And Inspire: K-12 Education In Science, Technology, Engineering, And Math (Stem) For America's Future. http://www.whitehouse.gov/ostp/pcast September 2010) stated that elementary school students need experiences in school that reveal the satisfaction of solving a problem, discovering a pattern or phenomenon on one's own, or designing and creating an invention in order to spark success in STEM learning. PLTW Elementary Lessons provides those experiences. For example, one third grade PLTW Elementary Lessons module challenges the students to employ various science and math concepts to rescue a fallen/trapped zoo animal. They investigate simple machines including wheel and axles, levers, and inclined planes, as well as the effects of balanced and unbalanced forces and magnets on the motion of an object. To develop a solution, the students must explore and review forces (gravity, pushes, pulls, resistance force vs. effort force) and mechanisms that may enable a small child to move a larger animal. Using the design process of ask, explore, model, evaluate and explain, they define the problem, criteria, and constraints and fill in a design brief. They build a prototype of a mechanism that can uncover and rescue a trapped zoo animal from VEXIQ equipment, test and evaluate their designs, record their design in action, and suggest improvements. This example shows how the use of the design process integrated with the activities-projects-problem-based PLTW Elementary Lessons modules enables students to see themselves in the role of a scientist, engineer, or mathematician while engaging in higher order, critical thinking and problem solving skills. These experiences will scaffold prior knowledge to build foundational concepts and skills that will increase their success with STEM learning. The professional development provided to PLTW Elementary Lessons teachers through the project will enhance their capacity to effectively teach a rigorous science and math curriculum, leading to an increase in achievement in science and math by students in Kindergarten-Grade 5. Research shows that many elementary school teachers are not only unprepared to teach science and mathematics effectively, but also suffer from anxiety about STEM subjects and fear teaching them (PCAST 2010). The PLTW Elementary Lessons professional development will be structured to emphasize the strategies and knowledge needed by the teacher to teach the students successfully. The training includes three phases: Readiness, Core, and Ongoing. Readiness Training focuses on core knowledge and skills to prepare the teacher for the Core Training. The Core Training will focus on pedagogy and activity, project, problem-based learning, using a "Learn by Doing" approach. The project will ensure quality by requiring teachers to successfully complete training for each module in order to teach it. Ongoing Training ensures that teachers are comfortable and confident with the content, focusing on the interaction of the subject matter and effective teaching strategies for each module. Ongoing Training will be continuously supported by an online Professional Learning Community, available to share best practices and suggest improvements. The ample support and knowledge provided by the PLTW Elementary Lessons professional development will set teachers up for success, thus boosting their confidence and competence. Better prepared and enthusiastic teachers using research-based curriculum, will result in an increase in student achievement in STEM courses.

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 financial documents when applicable:

a. Enter a project budget

b. Upload the Straight A 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 forecasts of each school district, community school or STEM school member for review.

c. If subsection (b) is not applicable, please explain why, in addition to how the project will demonstrate sustainability and impact.

NA

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

1,089,664.00 * 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, RttT money, local funding, 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).

Salary Costs-$23,885 PLTW Ohio Project Director (20% of time) to manage school recruitment, professional development delivery model, project implementation advisory committee meetings, etc. ($9,769) PLTW Elementary Program Manager (part-time: 22 hrs per week x $23/hr x 26 weeks) to to assist with school recruitment and registration, coordination of project activities, professional development logistics, and assist with project reporting ($13,156) Researcher from Sinclair's Research, Analytics & Reporting department (3% of time) to perform data collection, analysis, and reporting ($960) Retirement/Fringe Benefits-$5,484 PLTW Project Director @ 31.5% ($3,077) PLTW Program Manager @ 16% ($2,105) Researcher @ 31.5% ($302) Purchased Services-$131,550 PLTW Elementary Lessons Core Training (registration fees for 210 teachers x $625 fee for summer institute ($131,250) Postage for PLTW mailings to Ohio Elementary Schools ($300) Supplies and Materials-$928,745 Participation fee ($750/school district) for PLTW Elementary Lessons in 8 Ohio school districts (curriculum, software, and supplies) ($6,000) Materials, for implementation of PLTW Elementary Lessons in 8 school districts, including VEXIQ equipment kits for modeling designs ($500/kit/classroom X 252 classrooms) ($126,000) Tablet computers to support PLTW Elementary Lessons in 8 school districts (6 Rural districts/2700 students; 1 tablet/4 students = 675 tablets); (1 Urban district/1 building/300 students; 1 tablet/4 students = 75 tablets); (1 Suburban district/5 buildings/2760 students; 1 tablet/4 students = 690 tablets) = 1440 tablets X $479/tablet ($689,760) Tablet computers for teachers to use in PLTW Elementary Lessons Core Training and in the classroom in 8 school districts (6 Rural districts/1 building each/6 teachers/building; 1 tablet/teacher = 36 tablets); (1 Urban district/1 building/24 teachers; 1 tablet/teacher = 24 tablets); (1 Suburban district/5 buildings x 30 teachers/building x 1 tablet/teacher = 150 tablets) = 210 tablets X $479/tablet ($100,590) Materials and supplies for PLTW Elementary Lessons Core Training at 5 OH ESCs, including VEXIQ equipment kits to demonstrate activities ($500/kit) ($2,500) Tablet computers for use by trainers providing PLTW Elementary Lessons Core Training at 5 OH ESCs ($479/tablet X 5) ($2,395) Office supplies to support project activities ($1,500)

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.

31,438.00 * 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.

After the project is implemented, Project Lead The Way Ohio will continue the part-time Project Manager position as a permanent part-time position. The position will be covered by PLTW operating receipts. The PLTW Elementary Lessons Demonstration project will set the stage for a drive to recruit additional elementary schools from around the state, requiring the continuation of the position to coordinate recruitment, registration, and professional development. The new cost will be covered by the excess of operating receipts over operating disbursements, as shown in the Financial Impact Table. The PLTW Ohio Director and the PLTW Ohio Elementary Program Manager will work with the schools participating in the PLTW Elementary Lessons Program to identify business and industry sponsors to support the annual participation fee and cost of materials.

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

0.00 * 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.)

Since the structure of the Straight A Fund limits PLTW Ohio, as an Institution of Higher Education, from partnering with school districts, it is difficult to ascertain the exact nature of any expected savings participating schools may achieve. Savings are anticipated, however, since much of the curriculum for PLTW Elementary Lessons will be disseminated electronically, replacing the need for schools to purchase curriculum materials. Savings will also be realized by replacing other professional development trainings with the new, cost-effective PLTW model.

17. Provide a brief explanation of how the project is self-sustaining. If there are ongoing costs associated with the project after the term of the grant, this explanation should provide details on the cost reductions that will be made that are at least equal to the amount of new/recurring costs detailed above. If there are no new/recurring costs, explain in detail how this project will sustain itself beyond the life of the grant.

Since the structure of the Straight A Fund prohibits higher education institution applicants from partnering with school districts during the proposal development process, the estimated amount of savings for participating schools will not be known until project implementation. Following the termination of the project, each school participating in PLTW Elementary Lessons will incur annual program participation fees beginning in FY 2015. The participation fee covers required software rights, program support features to the curriculum, as well as the associated support systems such as end of course assessments and teacher online on-demand professional development offered by PLTW National. PLTW adheres to a cash flow philosophy based on an increase in number of schools participating in a program rather than increased unit cost. Conversations with school districts during this proposal preparation process revealed that participating schools will offset the cost of the annual fee by replacing acquisition of other curriculum materials with the PLTW Elementary Lessons materials, and by substituting the PLTW professional development training for other types of professional development. The professional development model developed during the project will provide a cost-effective model for delivery of PLTW Elementary Lessons professional development, tailored to the specific type of school district. The model will limit or eliminate required travel by utilizing a central school district location or a local Educational Service Center. It will also maximize the cost effectiveness of using a train-the-trainer model, enabling the Lead Teachers to train the other teachers in a building to be PLTW Elementary teachers at little cost to the school. Also, the schools will have access to the online Professional Learning Community to share best practices and improve pedagogy. The PLTW Elementary Lessons Program allows for flexibility. A school may implement the program for certain grades with one or two STEM teachers. Other schools may want multiple teachers trained. Each school will decide the best use of its resources - whether it's most effective to send all teachers to the Core Training, or to designate one Lead Teacher in a building to train all the teachers needed to implement the program in that building. Finally, PLTW requires each participating school to form a PLTW Partnership Team to build community support. The Team will include representatives from employers, local workforce development organizations, economic development personnel, business, labor organizations, and secondary and

postsecondary, academic and technical educators and other stakeholders, providing a network of resources to support the PLTW programs. The PLTW Ohio Middle and Elementary School Coordinator will work with schools to help them develop this community support.

D) IMPLEMENTATION - Timeline, communication and contingency planning

18. Fill in the appropriate dates and an explanation of the timeline for the successful implementation of this project. In each explanation, be sure to briefly describe the largest barriers that could derail your concept or timeline for implementation and your plan to proactively mitigate such barriers. In addition, the narrative should list the stakeholders that will be engaged during that stage of the project and describe the communication that occurred as the application was developed.

Describe the ongoing communication plan with the stakeholders as the project is implemented. (Stakeholders can include parents, community leaders, foundation support and businesses, as well as educational personnel in the affected entities.)

* Proposal Timeline Dates

Plan (MM/DD/YYYY): 01/01/2014

* Narrative explanation

Communications during the application process included discussions among the PLTW Ohio Director, Steve Wendel and administrators and teachers from three types of school districts-rural, urban, and suburban. He also exchanged professional development ideas with three Educational Service Centers across Ohio, and gave an overview of project planning and implementation designs to PLTW National. During the planning phase, the PLTW Ohio Director will gather input from participating schools, PLTW National, and Educational Service Centers in Ohio to adapt and adopt the PLTW Elementary Lessons professional development curriculum, and develop delivery models for professional development that will be effective and cost-efficient for each type of participating school district. The professional development curriculum will include: a. Readiness Training on core knowledge and skills, delivered online, on-demand through the PLTW electronic communications network b. At least 2 ? days of Core Training on pedagogy and activity, project, problem-based learning, using a "Learn by Doing" approach. Core Training will include online and live training. PLTW Ohio will work with at least one school seeking a train-the-trainer approach. This Lead Teacher Training will prepare Lead teachers to deliver Core Training to other teachers c. An Engaged Network-a professional learning community designed to identify effective teaching strategies and ensure teacher confidence and competence. The network will be enhanced by input from the evaluation results from the 2013-2014 alpha pilot test of PLTW Elementary Lessons conducted by PLTW National. After the grant period, the Engaged Network will be enhanced by Ongoing Training developed by PLTW National Timeline - Planning: January 31: PLTW Ohio Program Manager will be hired. January 31: School districts will complete PLTW Elementary Lessons registration February 15: PLTW Elementary Lessons documentation will be signed by superintendents and approved by school boards February - April: PLTW Ohio will work with participating schools and Educational Service Centers to develop professional development delivery models February - May: PLTW Ohio will work with PLTW National, the participating schools and teachers to develop the Engaged Network (professional learning community) for each school February - May: PLTW Ohio will work with PLTW National to prepare the curriculum for the Readiness, Lead Teacher and Core Training March 1: PLTW Ohio will communicate with the teachers identified at each school to explain Readiness Training and gather input April - May: PLTW Ohio will schedule Lead Teacher and Core Training sessions Possible barriers include delays in finding the best candidate for the PLTW Ohio Program Manager, and time constraints on administrators and teachers at the participating Educational Service Centers and schools to plan and assess the cost effectiveness of the professional development delivery model.

Implement (MM/DD/YYYY): 03/01/2014

* Narrative explanation

The planning and implementation phases will overlap as participating schools, Educational Service Centers, and PLTW National continue to provide input on the most cost-efficient and effective professional development models for different types of districts. Timeline - Implementation: March 1: PLTW Ohio Program Manager will be hired March 1: Schools will purchase PLTW Elementary Lessons supplies and materials March 1: PLTW Ohio will finalize purchase of tablet computers March - April: PLTW Ohio Program manager will schedule the required Readiness Training April 1: Schools will select their professional development delivery model April 1: Schools will identify the teachers for training April 1: Schools will select their professional development delivery mode April 1: PLTW National will identify Master Teachers to deliver the Lead Teacher and Core Trainings April 15: PLTW Ohio Program Manager will schedule the Lead Teacher Training in schools adopting the train-the-trainer delivery model April 15: Lead Teachers will be designated by schools selecting the "train-the trainer" model for professional development April 15: PLTW Ohio Program Manager will schedule the Core Training in accordance with the final professional development delivery models April - May: Participating teachers will complete Readiness Training May 31: PLTW Ohio will deliver the Lead Teacher Training in schools adopting the train-the-trainer professional development delivery model by May 31, 2014 June 30: PLTW Ohio PLTW Ohio Program Manager will work with the schools and the Educational Service Centers to deliver Core Training by June 30, 2014 June 30: Each school will finalize the framework for their Engaged Network (professional learning community) Possible barriers include delays in the finalization of the profession development curriculums by PLTW National, need for further Readiness Training for selected teachers, and delays in identifying Master Teachers to deliver the Lead Teacher and Core Trainings.

Summative evaluation (MM/DD/YYYY): 05/15/2014

* Narrative explanation

Project Director Steve Wendel will be responsible for the summative evaluation. Working with the Sinclair Office of Research, Analytics & Reporting and the PLTW Ohio Program Manager, the Project Director will conduct monthly reviews of evaluation data to track the project's progress. The Project Director and the PLTW Ohio Program Manager will be in continuous communication with the participating schools, PLTW National and the participating Educational Service Centers to monitor performance of the activity and to ensure completion on time and on budget. Outcomes will demonstrate the successful implementation of all planning and development steps by the end of the grant period: 1. Eight school districts will be enrolled in the Elementary Lessons Program for the 2013-2014 school year equipped with program equipment and materials 2. Eight school districts will be equipped with program equipment and materials to offer the Elementary Lessons Program during the 2013-2014 school year 3. All professional development curricula for Readiness, Lead Teacher and Core Traing will be finalized 4. All professional development delivery modes will be established for each type of school district 5. At least 210 elementary school teachers will have completed Elementary Lessons Readiness and Core Training Teachers who complete the Core Training will complete surveys to assess satisfaction with the training and self-perceptions of confidence and competence to teach Elementary Lessons modules. By June 15, results from the Straight A project beta testing will be compared with alpha testing conducted by PLTW National to create an action plan for maximizing effectiveness of the program prior to scaling throughout the state. Possible barriers include delay in release of final data from the alpha pilot test by PLTW National.

19. Describe the expected changes to the instructional and/or organizational practices in your institution.

Following the conclusion of this project, the organizational practices of the Project Lead The Way - Ohio will expand to include the Elementary Lessons Program, extending from kindergarten through 12th grade. As a result, students in primary and secondary school will be able to experience the activity, project, problem-based PLTW STEM learning which promotes critical thinking, creativity, innovation, and real-world problem solving skills. Although not intended as an introduction to the Project Lead The Way Gateway To Technology middle school program, or the Pathway to Engineering and Biomedical Sciences high school programs, the Elementary Lessons Program is designed to lead to an increase in student knowledge about STEM concepts and increase their achievement in STEM subjects. Participating elementary schools will have access to an effective curriculum that helps students connect, apply, and reinforce STEM concepts at a very early age. This will prepare students in later years for using authentic data resources for scientific inquiry, experimentation, and problem-based tasks that incorporate technology and technological and engineering design, as emphasized by the Core Curriculum and Next Generation Science Standards. Participation in this project will result in long-term changes to PLTW Ohio including an extension of school recruitment activities and program support to elementary as well as middle and high schools in Ohio. In addition, PLTW Ohio will include management of the logistics for professional development for teachers in the Elementary Lessons Program in its plan of operation.

E) SUBSTANTIAL IMPACT AND LASTING VALUE - Impact, evaluation and replication

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 classroom.

An innovative aspect of this PLTW Ohio Elementary Lessons Demonstration project is the professional development it will give elementary teachers. According to the September 2010 Report by the President's Council of Advisors on Science and Technology (PCAST 2010), teachers often lack both the knowledge necessary to teach science and math effectively, and the professional development to improve. Moreover, elementary teachers often approach STEM subjects with fear due to their lack of background. The strong emphasis placed by the PLTW program on high quality teacher training and supportive professional learning communities, will bolster elementary teachers' competence and confidence to teach the STEM-focused PLTW Elementary Lessons modules effectively. Both research and the proven success of the middle and high school PLTW programs support the goal of this project to increase student achievement. The professional development will lay the groundwork for that success. Research evaluating the effectiveness professional development shows that programs which integrate STEM content knowledge with pedagogical training in teaching the subject matter, improve both teacher competency and student learning. The professional development for the current PLTW programs in middle and high schools as well as the PLTW Elementary Lessons, is rich with content knowledge in math and science plus pedagogical training and follow-up on teaching practices. The record of the current PLTW programs in middle and high schools demonstrates the positive impact of the content and delivery of PLTW professional development on student achievement. A research study with a sample size of over 26,000 students, found that the 1,200 students enrolled in PLTW in the state of Iowa had higher mathematics and science achievement as measured by Iowa Test of Basic Skills and the Iowa Test of Educational Development for 8th and 11th graders, respectively (Schenk, Rethwisch, Chapman, Laanan, Starobin, & Zhang. 2011). During 2012-2013, students in more than 4,700 schools in all 50 states were enrolled in PLTW courses. Student testing and evaluation shows that 1. PLTW alumni are 5 to 10 times more likely to pursue engineering and technology classes than other first-year college students. 2. On average, PLTW alumni have a GPA 0.21 points higher than the average GPA of all first-year college students. 3. PLTW students outscored a random sample of other career/technical students by 10 points in reading, 11 points in mathematics, and 10 points in science. 4. Seventy-nine percent of PLTW graduates completed four years of college-preparatory mathematics and sixty-three percent completed four years of college-preparatory science. Introducing the activity, project, problem-based STEM learning into kindergarten - fifth grade with the innovative PLTW Elementary Lessons Program will provide children with exciting, real world, hands-on experiences with STEM problems and concepts that are necessary to spark their lifelong interest. Research shows early exposure to challenging material influences later career decisions. Sixty-five percent of scientists and STEM graduate students developed their interest in STEM before middle school (A. V. Maltese and R. H. Tai. 2010. Eyeballs in the Fridge: Sources of Early Interest in Science. International Journal of Science Education 32:669-685). PLTW Elementary Lessons will provide a repeatable, effective, and cost-efficient curriculum to capture young students' interest in STEM early in their educational pathways. PLTW Elementary Lessons' potent combination of effective professional development for elementary teachers and exciting curriculum for elementary students will enable the PLTW Ohio Elementary Lessons Demonstration project to meet its goal to increase student achievement.

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

☑ Yes ☐ No

22. If so, how?

All school districts in Ohio are eligible to participate in all PLTW programs, including the Elementary Lessons Program. As the PLTW Ohio Affiliate, Sinclair serves over 150 school districts in Ohio, demonstrating a strong capacity to mobilize participation by secondary schools. In addition, PLTW Ohio has a proven track record of outreach to traditional and nontraditional stakeholders. PLTW Ohio also convenes and works closely with the PLTW Ohio Executive Council composed of representative from industry, higher education and K-12 across Ohio, which operates at the state level. At the conclusion of this project, PLTW Ohio will continue outreach to Ohio elementary schools to inform them about the potential of the PLTW Elementary Lessons Program. The PLTW Elementary Lessons Program is designed for easy replication in any elementary school. The curriculum has been developed to be easily incorporated into the syllabus for an elementary school math and/or science program. In addition, it is standards-based, and aligned with both Common Core and Next Generation Science Standards. The delivery models for PLTW Elementary Lessons professional development will include regionally accessible alternatives across the state. In addition, this project will result in the option of an easily adapted building by building trainer-the-trainer professional development delivery model.

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

PLTW Ohio Elementary Lessons Demonstration project will achieve the following impact: 1. Elementary schools in eight (8) Ohio districts will be fully equipped to roll out the PLTW Elementary Lessons Program in the 2014-2015 school year. 2. PLTW Ohio will beta test new elementary STEM focused professional development materials with 210 elementary teachers. 3. 210 elementary teachers will be trained in the primary school science and mathematics knowledge content and teaching pedagogy of the PLTW Elementary Lessons program. 4. 210 elementary teachers will be trained to use the technology of tablet computers to teach the engineering design process, and mathematics and science concepts. 5. 210 elementary teachers trained to teach the PLTW Elementary Lessons program will participate in the Engaged Network professional learning community to share effective teaching strategies and best practices on an ongoing basis. 6. 5760 elementary students in six rural elementary schools, one urban elementary school, and one suburban school district will experience exciting, activity, project, problem-based STEM learning with the PLTW Elementary Lessons Program. 7. 5760 elementary students in six rural elementary schools, one urban elementary school, and one suburban school district will work in teams on tablet computers to learn how technology is used in engineering to solve everyday problems. 8. Three (3) effective and cost efficient models for delivery of elementary level professional development to rural, urban and suburban school districts will be developed and documented. Currently PLTW Ohio works with 150 Ohio school districts to provide and support the PLTW courses. After the project has ended, PLTW Ohio will work with PLTW National to offer the PLTW Elementary Lessons Program to those 150 Ohio school districts, as well as all other elementary schools in Ohio.

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 benchmarked.

Overall Goal: Lay the groundwork for increased elementary school and middle school student achievement by providing positive STEM learning experiences with the Project Lead The Way Elementary Lessons activities-projects-problem-based curricula supported by effective and cost-efficient professional development for their elementary school teachers. Benchmark 1: Eight Ohio school districts will be enrolled in beta testing of the Project Lead The Way Elementary Lessons by February 28, 2014. Benchmark 2: Eight elementary school buildings will be equipped with Project Lead The Way Elementary Lessons program equipment and materials by April 30, 2014. Benchmark 3: A train-the-trainer model for Core Training will be in place with at least one school district by May 31, 2014. Benchmark 4: Results from the Straight A project beta testing will be compared with alpha testing conducted by PLTW National by May 31, 2014, to create an action plan for maximizing effectiveness of the program prior to scaling it throughout the state. Benchmark 5: There will be 210 elementary teachers trained in the primary school science and mathematics instruction pedagogy of PLTW Elementary Lessons program by June 30, 2014.

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.

Due to the short six-month grant period, short- term objectives will be achieved within the first four months of the grant period; long-term objectives will be achieved during the last two months of the grant period. Objective 1 (short-term): Enroll and equip participating elementary schools in eight school districts for the PLTW Elementary Lessons program. Data to Be Collected: Numbers of schools registered; signed agreements by superintendents/school board; purchase documentation; budgets monitoring expenses Formative Outputs/Outcomes: 1. Selection criteria for elementary schools in eight districts 2. Sustainability plans for inclusion of PLTW Elementary Lessons modules in curriculum 3. Criteria for a fully equipped classroom 4. Criteria established for inventory and tracking of tablet computers 5. Criteria established for IT monitoring and control Objective 2 (long-term): PLTW Elementary Lessons training system is established. Data to Be Collected: Training and location schedules; training agendas; training modality rubric adopted by each school Formative Outputs/Outcomes: 1. Training and assessment materials finalized 2. Delivery models for training suitable for three different types of district established 3. Processes outlined for Professional Learning Communities 4. Documentation for training for each school district completed 5. Educational Service Centers engaged and providing services Objective 3 (long-term): Document the process used to develop effective, cost efficient, models for delivery of training Data to Be Collected: Standards for the Ohio Standards for Professional Development, Core Curriculum, and Next Generation Science Standards; school budgets monitoring training expenses; post-training teacher surveys Formative Outputs/Outcomes: 1. Compliance with the Ohio Standards for Professional Development, Core Curriculum and Next Generation Science Standards 2. Return on investment calculated for training delivery models for three types of district 3. Teachers are competent and confident about teaching STEM concepts using technology and the design process 4. An operational plan developed for scaling PLTW Elementary Lessons to other Ohio schools Additional longer-term objectives outside the scope of the six-month project include: (1) Increase students' achievement in STEM middle school courses, and (2) Increase teachers' self-perceptions of confidence and competence to teach Elementary Lessons modules in multiple ways. Project Director Steve Wendel will be responsible for tracking the project's progress, overall project evaluation, including quantitative and qualitative methods in data collection. He will work with the Sinclair Office of Research, Analytics & Reporting to track data and evaluate progress toward short- and long-term objectives. The Project Director will monitor performance of the activity and conduct monthly reviews of evaluation data to ensure completion on time and on budget. Sinclair Community College, the fiscal agent for this project, has extensive experience in managing large federal, state, and privately-sponsored grants. In accordance with OMB Circular A-133, all expenditures are audited annually. Sinclair is considered a low-risk auditee. If the program progress does not meet program objectives, PLTW Ohio will work with the participating schools and PLTW National to improve the quality of the PLTW Elementary Lessons Program. Ongoing evaluation will allow for improvements to instructional, curricular, and assessment materials and improve the professional development for participating teachers. These efforts include the development, validation, and administration of assessments, examinations, surveys and/or other measurement tools on behalf of schools during their participation in the PLTW Elementary Lessons Program in fall 2014.

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 overall 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 CCIP. In the box below, enter "I Accept" and indicate your name, title, agency/organization and today's date.

I accept. Steven L. Johnson, Ph.D. President and CEO Sinclair Community College 10/25/13