## Budget

Canfield Local (048314) - Mahoning County - 2014 - Straight A Fund - Rev 0 - Straight A Fund - Application Number (306)

### U.S.A.S. Fund #:

Plus/Minus Sheet (opens new window)

### Canfield Local (048314) - Mahoning County - 2014 - Straight A Fund - Application Number (306)

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### Adjusted Allocation

0.00

### Remaining

-159,050.00
B) PROJECT DESCRIPTION

1. Project Title:

AST2 (Applied Systems and Technology Transfer) lab focuses on advanced industry equipment and materials. AST2 develops and implements technology at the nexus of education and workforce development, advanced manufacturing and cloud computing, leveraging the synergistic opportunities of these areas. This project aims at replicating what AST2 (Applied Systems and Technology Transfer) has done with their high school program and adding additional instructional supports for the middle school.

2. Project Description:

STEM lab will have 3D printers, a laser cutter, a vinyl cutter, scanners, and other manufacturing technologies. The idea is to get each student experience with science, technology, engineering, and math prior to entering high school and postsecondary environments. By providing access to curriculum in a collaborative online environment each student has a chance to get a familiarity with blended online learning.

3. Total Students Impacted:

To increase student achievement by providing virtual learning and a shared resource of a hands-on STEM manufacturing lab to middle schools in the tri-county area for the next five years for individual districts and families on advanced industry equipment and materials. AST2 develops and implements technology at the nexus of education and workforce development, advanced manufacturing and cloud computing, leveraging the synergistic opportunities of these areas. This project aims at replicating what AST2 (Applied Systems and Technology Transfer) has done with their high school program and adding additional instructional supports for the middle school.

4. Lead applicant primary contact:

First Name, last Name of contact for lead applicant: Geordan
Organizational name of lead applicant: Canfield Local Schools
Unique Identifier (IRN/Fed Tax ID): 048314
Address of lead applicant: 100 Wadsworth Street Canfield, OH. 44406
Phone Number of lead applicant: 330-533-3303
Email Address of lead applicant: geordan@canfieldschools.net

5. Secondary applicant contact:

First Name, last Name of contact for secondary applicant: Patricia Kesner
Organizational name of secondary applicant: Canfield Local Schools
Unique Identifier (IRN/Fed Tax ID): 048314
Address of secondary applicant: 100 Wadsworth Street Canfield, OH. 44406
Phone number of secondary applicant: 330-533-3303
Email address of secondary applicant: pkesner@canfieldschools.net

6. List all other participating entities by name:

Mahoning County: West Branch MS, Western Reserve MS, Campbell MS, South Range MS, Springfield Intermediate MS, Jackson Milton MS, McKinley Elementary, Poland MS, Struthers MS, Austintown MS, Center MS, Frank Ohi Intermediate School, Glenwood MS, Kirtken Elementary, P. Ross Berry MS, Rayen Early College MS, University Project Learning Center, Vokey Rogers JH, William S. Guy MS, Wilson MS, Trumbull County: Brookfield MS, Lakeview MS, Maplewood MS, Neal MS, Girard Intermediate MS, Girard Jr. High, Reed MS, Badger MS, Labrae Middle School, Mineral Ridge MS, Newton Falls Jr. High, Niles MS, Bloomfield HS, Southington MS, Champion MS, Howland MS, Lincoln K-8, Willard Avenue K-8, Columbiana County: Crestview MS, East Liverpool Jr. High, Westgate MS, East Palestine MS, Eastonia MS, Beaver Local MS, David Anderson Jr. High, Salem Jr. High, Southeast Elementary, Daw MS.

7. Partnership and consortia agreements and letters of support:

* 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.

UploadGrantAttachment.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.

The project will consist of partnerships with AST2, Youngstown State University (YSU), and our own HS students (as an internship for their STEM program). Canfield Village Middle School will provide the space for the extended hub to be located along with equipment for partner schools to utilize. AST2 will contract with participating schools to provide the setup, maintenance of the equipment, software, and professional development required to run a course and support the computer lab space. YSU and Canfield HS will provide a pool of candidates looking for engineering intern experience to run the lab space for other schools utilizing the equipment virtually. The INVENTORcloud Program, developed by AST2, is a comprehensive program that offers inquiry and problem based learning in a unique, technology-rich environment for students. INVENTORcloud utilizes hardware technology and software applications to integrate innovation, creativity and design thinking with 21st century career and life skills. INVENTORcloud challenges students, individually and as teams, to collaborate in problem-based activities to solve real-world challenges. Students apply the design process using computer design and visualization tools to create virtual prototypes which are then produced with rapid prototyping equipment. INVENTORcloud, through virtual presence technology, enables students to remotely access INVENTORcloud Lab’s rapid prototyping equipment such as 3D printers, laser cutters and mills to turn virtual prototypes into reality. The six week fifth grade curriculum focuses on engineering energy. Students design and build projects designed to solve energy-related issues. They also investigate the human’s role as it relates to energy use and the study of alternative resources. The sixth grade, six week curriculum focuses on engineering and STEM. Through team activities, they learn an appreciation for the work that engineers and scientists do and have opportunities to express creativity in solving problems. In seventh grade, the nine week course provides students with an in-depth study of the design process. They create products and study the steps in the design process while learning about copyrights and patents. They also work to re-design current products to make them better. The nine week eighth grade curriculum discusses how STEM relates to our state, county, and economy. They also explore STEM career options (current and potential). INVENTORcloud curricula are digital courses for a digital classroom. Content is derived from relevant videos, articles and subject matter sources. The rich, dynamic content creates thought-provoking and interesting courses for a broad range of students. Courses are aligned with Common Core State Standards and select state career & technical education standards and are eligible for dual credit.

9. Which of the stated Straight A Fund goals does the proposal aim to achieve?

- Project Title: Middle School STEM Hub
- Description of Nature of Partnerships or Description of Nature of Consortium Agreements
- 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.

10. Which of the following best describes the proposed project?

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
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.
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.

13. Financial Documentation - All applicants must enter or upload the following supporting information. Responses should refer to specific information in the financial documents where applicable:
   a. Create a project budget
   b. Upload a Schedule of Expenditures
   c. Return the application for review.

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

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.

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

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.

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): 02/01/2014
   * Narrative explanation

   02/01/2014-6/20/2014 Training will have to be done with teachers on the INVENTORcloud hardware and software. Teachers will also need formal training in Problem and/or Project-Based learning. Potential barriers include shifting staff in appropriate places in order to use the most qualified staff as part of the project. Youngstown State, AST2, IMSA, BIE, Mahoning County ESC.

   03/31/2013 Equipment will be purchased and set up in the room. AST2 will set up a middle school lab with all of the equipment and get the participating schools the access to be able to communicate with the appropriate lab. Stakeholders include CVMS parent volunteers, CVMS teachers, Maintenance, Technology, Administration.

   Implement (MM/DD/YYYY): 07/14/2014
   * Narrative explanation

   Implement 07/14/2014 Teachers will receive professional development through YSU and AST2 to navigate the components of the curriculum, how to connect to the lab virtually, and what are the requirements are in the curriculum. Teachers will get training through the Illinois Math & Science Academy (IMSA) on Problem-based learning or training from the Buck Institute for Education (BIE) on Project-based learning. Stakeholders: Youngstown State, AST2, IMSA, BIE, Mahoning County ESC.

   Summative evaluation (MM/DD/YYYY): 08/01/2014
   * Narrative explanation

   08/01/2014 A summary of expenditures and professional development will be summarized. Stakeholders: CVMS Administration, Superintendent, Treasurer, Mahoning County ESC. The program will continue and be sustained by Canfield Local School Districts.

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

Research shows that problem based, inquiry learning teaches problem-solving, critical thinking skills, and disciplinary content. It also promotes the transfer of concepts to new problem questions, teaches students how to learn, and builds self-directed learning skills. Students develop ownership of their inquiry which enhances student interest in the subject matter. Students will develop an interest in innovation, creativity, and working with others to solve real-world problems. In INVENTORcloud, students have access to interesting technologies that allow them to communicate with students anywhere in the world, to use design tools, and create solutions to problems and challenges. Students will create 2D and 3D virtual models, and using rapid prototyping equipment and remote access to digital manufacturing equipment, build your creations, and test them out. Through attrition, we will be reallocating funds to implement this program that is aligned to the CCS and that teaches students college and career readiness skills. This program debuted in Fall 2013 at Youngstown City School District's Discovery at Kirtmire Elementary School, a new magnet school for grades 3 to 8 which focuses on six exploratory areas of study including investigative sciences and engineering. Perry Local School District, Lake County, is introducing Discovery Learning Program at its middle school in November 2013 as it develops and implements an integrated STEM Program.

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

☐ Yes ☐ No

22. If so, how?

Other schools in Ohio can easily replicate this project because it allows virtual, cost effective access to curriculum taught in a manner proven to heighten student interests (through project based learning). Regions will need one school to serve as the home base. That school must commit to an initial investment in technology and machinery that will enable the students to see their design and innovation through to fruition. Other schools across the region, state, or country can virtually join the classroom. Projects can be distributed through pick-up or mail services.

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

The value and impact of this program is long-lasting. It has the potential to save families thousands of dollars in tuition money by providing students with exposure to 21st century skills at an early age, which, in turn, allows students to gain insight to their strengths and weaknesses, likes and dislikes. Students will learn skills that are applicable in daily life, problem solving, creating, innovating, and critical thinking skills will develop as they work through the curriculum. We also hope to inspire students to pursue areas of high interest that will also benefit Ohio’s future workforce and positively impact the financial future of our great state. By partnering with AST2, a local agency, students will be exposed not only to a globally pertinent curriculum, but will also be afforded the opportunity (as they work through the program) to work with local agencies in internships. Ultimately, we will be working to provide Ohio with properly educated young men and women that are properly equipped to become productive members of society.

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.

Middle School objective is to prepare our students for rigorous coursework at the High School level. We do that by creating an environment rich in problem solving experiences and inquiry based learning. Student achievement outcomes can be measured in a variety of ways, and ultimately the benefits will be measured throughout life. Benchmarks to show an increase in student achievement are:

- Increased Value Added scores: o Currently, our Value Added scores are weakest in our 2nd, 3rd, and 4th quintiles; our students consistently show growth in the first and fifth quintiles in both reading and math in grades 5-8. - Increased scores on OAA/grade level state exams (as measured by Performance Index and student achievement levels increasing): o In our building, approximately 98% of our students are proficient or above. In grades 5 and 7, there is a disproportionate percentage of students achieving at proficient. One benchmark will be an increase in Performance Index to indicate less students achieving in the lower levels (Limited, Basic, Proficient) and more students achieving Accelerated and Advanced. - Increased in formative classroom assessment scores (both pre-test and post-test): o Teachers currently collect, analyze, and report pre- and post-assessment data on a monthly basis. - Increased in gifted identified students. Benchmarks to show spending reductions in the five-year fiscal forecast are:

- End of FY 15, through attrition and staff re-assignment, the MS will have reduced two staff members for a total of $92,000. - End of FY 16, through attrition and staff re-assignment, the MS will have reduced another staff member for a total of $138,005. - The cost of maintenance upkeep and repair will be collected through fees assessed to participating districts. Benchmarks to show utilization of a greater share of resources in the classroom:

- The entire MS (approximately 1,000 students) will have access to the technology in the lab. - The hubs (participating schools) will be assessed a yearly fee which will cover the cost of maintenance, repair, and replacement of equipment.

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).

- Value Added scores will be evaluated for growth at grade levels and at the individual teacher levels. - Used diagnostically, adjustments will be made in instruction and curriculum. - Value Added projections will be evaluated to determine if students are on the growth trajectory. - OAA/grade level state exams (as measured by Performance Index and student achievement levels increasing): - Performance Index scores will be evaluated at the building and district level to determine if growth was made. - Individual student scores will be charted and plotted to determine an achievement level increase. - A larger percentage of students achieving at accelerated or advanced levels. - Formative classroom assessment scores (both pre-test and post-test): - Teachers will begin charting growth on pre- and post-assessments to determine if they’ve reached growth. - Teachers will analyze and compare growth throughout the various cohorts of students. - Increase in gifted identified students.

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.

☐ Accept Max Geontran Canfield Local Schools 10/24/13