### Budget

**Fairfield County** - **ESC (046839) - Fairfield County - 2015 - Straight A Fund - Rev 0 - Straight A Fund - Application Number (63)**

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

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**Adjusted Allocation** | 0.00

**Remaining** | -1,756,014.00
**A) APPLICANT INFORMATION - General Information**

1. **Project Title:**
   - GROWING SOIL

2. **Executive summary:** Please limit your responses to no more than three sentences.
   - GROWING SOIL scales the innovative blend of STEM curriculum development, teacher professional development, and student field experiences, alongside the strategic development of STEM Outdoor Innovation Labs by growing the shared use of the resources and curriculum organically impacting OH student achievement across all content areas and workforce development. Building from the existing 9 SOILabs to 15 SOILabs and from 15 participating schools to 30 schools, GROWING SOIL will 1) expand and elevate the reach of SOIL to K-16, 2) engage community and industry partners, 3) increase the number of Transdisciplinary Problem-Based curricula modules (TPBL) and provide teachers with open access to these resources, 4) utilize existing resources developed in Straight A Fund I by partnering with other programs like Mobile Fab Labs. GROWING SOIL is a quick paced program that draws on the learned success of SOIL and the established processes for TPBL to create mechanisms and framework for growing and sustaining outdoor innovation labs across OH, evolving the SOIL program to drive change, captures information as it grows, and serve as a model for future community networks.

   *This is an ultra-concise description of the overall project. It should not include anything other than a brief description of the project and the goals it hopes to achieve.*

3. **Total Students Impacted:**
   - 4500

   *This is the number of students that will be directly impacted by implementation of the project. This does not include students that may be impacted if the project is replicated or scaled up in the future.*

4. **Please indicate which of the following grade levels will be impacted:**

   - Pre-K Special Education
   - Kindergarten
   - 1
   - 2
   - 3
   - 4
   - 5
   - 6
   - 7
   - 8
   - 9
   - 10
   - 11
   - 12

5. **Lead applicant primary contact:** - Provide the following information:
   - First Name, last Name of contact for lead applicant
     - Dan Montgomery/Marie Ward
   - Organizational name of lead applicant
     - Fairfield County ESC
   - Address of lead applicant
     - 955 Liberty Dr., Lancaster, OH 43130
   - Phone Number of lead applicant
     - 740.653-3193
   - Email Address of lead applicant
     - mward@fairfieldesc.org

6. **Are you submitting your application as a consortium?** - Select one checkbox below

   - Yes
   - No

   *If you are applying as consortium, please list all consortium members by name on the "Consortium Member" page by clicking on the link below. If an educational service center is applying as the lead applicant for a consortium, the first consortium member entered must be a client district of the educational service center.*

   [Add Consortium Members]
7. Are you partnering with anyone to plan, implement, or evaluate your project? - Select one checkbox below

- Yes
- No

If you are partnering with anyone, please list all partners by name on the “Partnering Member” page by clicking on the link below.

Add Partnering Members

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

8. Describe the innovative project: - Provide the following information

The response should provide a clear and concise description of the project and its major components. Later questions will address specific outcomes and the measures of success.

The current state or problem to be solved; and

Ninety percent of successful learning occurs through applied learning in real world situations (Pink 2006). The traditional textbook/lecture instructional strategy focuses on theory and memorization, as do current standardized tests. There is a shift underway around the world toward applied learning with understanding supplanting rote memorization. Applied learning is the focus of Common Core Standards and new standardized tests. The creation and expansion of SOILabs and TPBL curricula created through SOIL are in direct response to the need to amplify applied learning and critical thinking skills. Outdoor Innovation Labs enable schools to fully exploit the property resources expanding the reach of education without expanding the school. SOILabs take full advantage of untapped resources on school property. SOILabs provide innovative situations where students can explore, tackle problems, and find solutions, transforming learning to understanding. Recent data from problem-based learning schools reveals that the applied approach when pivoted in STEM topics, culturally relevant, and well articulated in approach raises student achievement between proficient and advanced, across all content areas, by several percentage points (SDI 2013). Data from PAST Bridge Programs, with an underlying emphasis on Math, helped low performing students rise to grade level, understanding of Algebra (I Know I Can2010). The SOIL program used this research for informing where the greatest need for learning context lies, and how this approach will impact overall student achievement. As the springboard for further research on the benefits of outdoor learning centers, the American Camp Association noted that "For generations, children have gone to camp in order to experience the outdoors in a shared community designed to maximize a young person’s experiential learning above and beyond the four walls of a classroom" (American Camp Association 2013).

The proposed innovation and how it relates to solving the problem or improving on the current state.

By combining the research that recognizes the importance of applied learning with the research that acknowledges the benefits of outdoor experience and exploration, SOIL melds to powerful learning strategies to deliver robust education. Utilizing the PAST replicable process for designing and implementing TPBL programs, SOIL insures that all developed materials and outdoor labs will help establish a model for transforming learning. Piloting the TPBL modules at an established field station familiar with both the PAST process and the PAST Bridge Program approach, GROWING SOIL establishes a model that can be replicated, studied and sustained. Currently there are 9 SOILabs funded through Straight A, round I. All 9 are innovative programs that have exceeded the original scope of the first grant, however through ongoing formative evaluation of the grant in process, it is clear that to expand to 30 SOILabs there needs to be mechanisms, processes, and a greater connection with the communities surrounding SOIL schools. GROWING SOIL is a real time, innovative, responsive to what was learned in SOIL. GROWING SOIL is designed to enable SOILabs to expand organically reaching a greater share of Ohio students and teachers and, to build innovative mechanisms and processes that support ongoing development of TPBL curricula, the sharing of curricula, and the dynamic interaction of teachers using, modifying and expanding SOILab learning. Through open source, innovative processes and mechanisms, SOILabs will create pathways for encouraging partnerships, sharing resources and expanding, which in turn reduce the costs of education and offer a better use of resources. STEM Outdoor Innovation Labs (SOIL) is a mixed concept program that is currently constructing 9 SOILabs from Akron to Columbus, and from urban to rural, providing professional development for 18 teachers, and the opportunity for 240 students and 18 teachers to experience outdoor education at Kelleys Island Field Station. GROWING SOIL is intended to expand the reach of SOILabs across 30 schools, into the community (partnerships with business and post secondary institutions), and into workforce development. GROWING SOIL is intended to elevate innovative outdoor learning by establishing frameworks, mechanisms, and processes that establish a platform for organic growth and access. As in SOIL, GROWING SOIL will provide PD for all returning and new teachers (60), give another 240 students and 42 teachers the opportunity to experience KI Educational Field Station, and set up mechanisms and workshops whereby SOILabs can establish partnerships with industry and post secondary organizations. Moreover, GROWING SOIL through virtual platforms and open access to TPBL modules will help the SOIL network establish strong linkages that agilely respond to change and amplify growth. By expanding an established program and elevating its reach, GROWING SOIL will significantly change the capacity and sustainability footprint of SOIL, thus changing the reach of applied learning in OH.

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

Applicants should select any and all goals the proposal aims to achieve. The description of how the goals will be met should provide the reader with a clear understanding of what the project will look like when implemented, with a clear connection between the components of the project and the stated goals of the fund. If partnerships/consortia are part of the project, this section should describe briefly how the various entities will work together in the project. More detailed descriptions of the roles and activities will be addressed in Question 16.

- Student achievement (Describe the specific changes in student achievement you anticipate as a result of this innovation (include grade levels, content areas as appropriate) in the box below.)

Goal 1: Student Achievement GROWING SOIL will significantly improve student achievement by accelerating applied learning and critical thinking skills through the expanded use of outdoor learning centers that employ TPBL modules. Through a multi-pronged approach, schools
Spending reductions in the five-year fiscal forecast or positive performance on other approved fiscal measures. Describe the specific reductions you anticipate in terms of dollars and spending categories over a five-year period in the box below or the positive performance you will achieve on other approved fiscal measures. Other approved fiscal measures include a reduction in spending over a five-year period in the operating budget approved by your organization’s executive board or its equivalent.

**Goal 2: Spending reductions in the five-year fiscal forecast**

GROWING SOIL will significantly reduce consortium partners' costs related to STEM-based professional development and no-cost environmental education curricula. By organically expanding the reach of the SOILabs to buddy schools, community programs, higher education programs, and community partners, SOIL curricula will expand alongside. The TPBL modules will become available through an open access platform to all Ohio teachers in a way that allows the curricula to continue to modify and grow saving schools and districts significant expenditures related to purchasing pre-package curricula. The expansion of SOILabs as a resource into the community will increase opportunities for workforce development and shared use of resources reducing overall costs to community development. To ensure that the resource of the SOILabs are shared requires framework and mechanisms that encourage participation and buy-in. GROWING SOIL targets the development of the framework and mechanisms that take SOIL from sustainability within a school to sustainability within a community. Creating a network that is accessible, agile and responsive will create opportunities across communities and regions allowing organic growth that leads to cost savings and better alignment of local resources. Creating replicable processes for teachers to create and share rigorous and relevant TPBL modules empowers teachers both within the SOIL cohort and outside the cohort to employ applied learning that is aligned to Common Core Standards and encourages cross curricular literacy. These facets are hallmarks of 21st century learning and will better prepare our teachers and students to meet the needs of today and tomorrow. Engaged students are better behaved, increasing their academic achievement. Better student achievement is cost effective diminishing the need for expensive remediation. Teacher created TPBL modules that are tailored to the student community, local issues, and the passion of the moment is cost effective, significantly reducing the cost of textbooks in a given school. Together, access, communication, and content pivoted on the innovative outdoor learning centers provide school districts with an innovative pathway to significant savings and integration within community.

**Utilization of a greater share of resources in the classroom**

Describe specific resources (Personnel, Time, Course offerings, etc.) that will be enhanced in the classroom as a result of this innovation in the box below.

**Goal 3: Utilization of a greater share of resources in the classroom**

GROWING SOIL will significantly drive resources to classrooms by creating additional outdoor learning labs that double the reach to buddy schools and community programs across Ohio. GROWING SOIL also drives resources to classroom by building teacher capacity to effectively use outdoor space and by creating an accessible reservoir of TPBL modules that can be replicated and expanded upon modeling for other teachers how to use SOILabs and how to build their own STEM curriculum, which in turn they can share. The TPBL modules created in the initial SOIL grant will form the base for continuing to grow and share rigorous STEM curricula that crosses content areas, is aligned to Common Core, Next Generation Science, and appropriate Ohio standards. The TPBL process empowers teachers to create a curricula that through a portfolio of replicable forms provides evidence of planning, project management, student involvement, differentiated instruction, learning objectives, assessment data (formative and summative), as well as a visual record of implementation. Each module is a well-articulated guide for STEM instruction allowing it to be used as well as easily modified by other teachers. Growing the number of TPBL modules associated with outdoor learning centers will drive resources previously unattainable to the classroom and provide school administrations as well as the whole community with easily understood access to what is being learned, by whom, and why. Utilizing the outdoor learning centers and allowing them to influence partnering programs will organically grow the reach of engaging and relevant education throughout Ohio. As the applied learning nature of the TPBL modules expands in usage, engagement will increase, achievement will increase, and a number of costly disadvantages of non-engagement and poor achievement will decrease enabling teachers to readily expand the reach of learning. To accomplish this goal GROWING SOIL will provide all new teachers with an 8-week online professional development course covering Transdisciplinary Problem-Based Learning (TPBL) along with a series of 2-day workshops that focus on building dynamic, STEM curricula pivoted on the SOILabs. The professional development for teachers will be reinforced with the opportunity to experience the potential of outdoor education alongside students at weeklong programs hosted at Kelleys Island educational prototyping field station in Lake Erie. This experience helps teachers better understand how problem-based learning is developed and delivered so that they can return to their own SOILab and implement their own TPBL modules. Fortifying the transition from traditional textbook/lecture instructional strategies to TPBL GROWING SOIL will establish a virtual brainstorm platform where teachers can share successes, ask for help, and discuss strategies for implementation and development. Finally, in order to grow the number and access to the created TPBL modules GROWING SOIL will enlist the use of an open access, web platform that enables teachers to share TPBL modules. Defined and replicable processes that empower teachers with a significant role in the organic growth innovative outdoor learning centers is key to better use and sharing in classroom resources.
Goal 4: Implementing a shared services delivery model GROWING SOIL’S primary goal is to significantly increases shared resources and services by creating mechanisms and models for collaboration between schools, between schools and community programs, between schools and industry, and between schools and Higher Education to expand the learning environment, to build teacher effectiveness, to include workforce development, and to provide relevant education that resonates with the individual community needs, regardless of location or size. This type of sharing goes beyond sustainability within a school to growing community integration and assets. As a result of funding from the initial Straight A grant, SOIL was able to stimulate formative community integration of interest and resources. This was immediately noted in the ongoing formative knowledge capture that has paced the SOIL project from inception. These budding connections and the evidence of where these connections needed to be expanded and fortified led to this proposal. This information coupled with regular inquires from non-participating schools on how to get involved helped form a guide as to what the next steps should be in creating a SOILabs network that both is sustainable and organically agile enough to grow once established. Thus it is the primary goal of this proposal to create the framework, mechanisms, and processes that are agile and responsive enough to the diverse needs of community, industry and education so that a SOIL collaborative can grow, respond to the needs of education and workforce development, and provide easy access to those who desire participation. This is no small task when education and community have lived in isolation of one another for so long. However, this is not outside the realm of possibility given the development of specific frameworks that enable sharing, access that fosters participation and communication, programs that increase student achievement, and processes that empower teachers, all with a dedication to cost effectively sharing resources and services. As a result of this collaboration, partner schools will provide new opportunities for their students to gain STEM learning, have workforce development training through the SOIL industry partnerships providing marketable skills critical to Ohio's future. GROWING SOIL proposes to accomplish this goal by 1) Expanding the number of SOILabs from 9 to 15 so that they have a greater reach across more regions of Ohio, 2) Developing buddy programs between SOILab schools and schools or educational organizations who do not possess an outdoor learning center, thus growing the number of programs involved with SOIL from 15 to 30, 3) Partnering each SOILab with an business or industry so that SOIL reaches into the community and provides workforce development opportunities, 4) Leveraging partnerships with Straight A opportunities such as the Pathways to Prosperity Mobile Fab Labs and Kellesy Island Educational Prototyping Field Station developed in the first round to expand the potential of the SOILabs, 5) Linking to collegiate programs that can potentially provide in-depth content expertise, dual credit, and early college opportunity, 6) Fortifying the professional development initiated in the first round of SOIL in order expand the number and range of TPBL modules created for the SOILabs, and 7) Enlisting an open access, web platform to house and disseminate TPBL Modules along with the knowledge captured so that SOIL goes from reaching 60 teachers to all 106,365 Ohio teachers (National Board of Certification 2013). By building the model in a deliberate and articulated fashion, GROWING SOIL has the ability to help change student achievement, teacher effectiveness, workforce development and community and education partnerships across Ohio.

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

- New - never before implemented
- Existing: Never implemented in your community school or school district but proven successful in other educational environments
- Mixed Concept: Incorporates new and existing elements
- Established: Elevating or expanding an effective program that is already implemented in your district, school or consortia partnership

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

11. Financial Documentation: - All applicants must enter or upload the following supporting information. The information in these documents must correspond to your responses in questions 11-14.

* Enter a project budget in CCIP (by clicking the link below)
* If applicable, upload the Consortium Budget Worksheet (by clicking the link below)
* Upload the Financial Impact Table (by clicking the link below)
* Upload the Supplemental Financial Reporting Metrics (by clicking the link below)

Upload Documents

For applicants without an ODE Report Card for 2012-2013, provide a brief narrative explanation of the impact of your grant project on per pupil expenditures or why this metric does not apply to your grant project instead of uploading the Supplemental Financial Reporting Metric.

The project budget is entered directly in CCIP. For consortia, this project budget must reflect the information provided by the applicant in the Consortium Budget Worksheet. Directions for the Financial Impact Table are located on the first tab. Applicants must submit one Financial Impact Table with each application. For consortium applications, each consortium member must add an additional tab on the Financial Impact Tables. Partners are not required to submit a Financial Impact Table.

Applicants with an "Ohio School Report Card" for the 2012-2013 school year must upload the Supplemental Financial Reporting Metrics to provide additional information about cost savings and sustainability. Directions for the Supplemental Financial Reporting Metrics are located on the first tab of the document. If your organization does not have an "Ohio School Report Card" for the 2012-2013 school year, please provide an explanation in the text box about how your grant project will impact expenditures per pupil or why expenditure per pupil data does not apply to your grant project.

Educational service center, county boards of developmental disabilities, and institutions of higher education seeking to achieve positive performance
12. What is the total cost for implementing the innovative project?

Responses should provide rationale and evidence for each of the budget items and associated costs outlined in the project budget. In no case should the total projected expenses in the budget narrative exceed the total project costs in the budget grid.

1,756,014.00 State the total project cost.

* Provide a brief narrative explanation of the overall budget.

| Total Request: $1,756,014 | GROWING SOIL’s budget covers the period between 8/1/2014 and 6/30/2015. The budget is composed of Purchased Services ($1,522,809) and Salaries ($85,005) intended to leverage the expansion and elevation of SOIL. The budget’s main categories reflect expenditures for new SOILabs ($60,000), expanding existing SOILabs ($67,500), as well as workshops, online courses and PD for all project teachers (60) ($394,500). Ongoing PD and network facilitation extend the reach of GROWING SOIL across 4 years to ensure that the network infrastructure is agile and responsive to the SOILabs ($247,184). PD and construction expenditures will directly reach 30 schools, 60 teachers and 4500 students. Included in the expenditures are 12 weeks of environmental programming at KI field station. KI programs will serve 240 students and 42 teachers ($398,861), bringing the total of SOIL I & II teachers and students experiencing the outdoor prototyping lab to 540 participants in 18 months (1/2014-6/2015). Budget expenditures for infrastructure ($389,639) enable the expansion and elevation of SOIL from sustainable by a single school to sustainable by whole communities, with reach across OH. The open access platform for storing and accessing the TPBL modules created by the 60 SOIL teachers will be available at no cost to all 106,365 certified teachers in OH. Finally, Growing SOIL, includes both internal and external evaluation ($170,279) to ensure fidelity to design, implementation, and long-term sustainability, as well as inform the responsive project change, as needed. The focus of using funds to build and strategically impact existing resources makes SOILabs innovative and sustainable, as well as cost effective. The breakout costs associated with this grant equates to $7,317/teacher/yr (60) or $97/student/yr (4500) over the course of 4 years. Growing SOIL will provide all OH teachers with online, access to robust standards-based STEM TPBL modules for $16/teacher (106,365). |
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Sustainability costs include any ongoing spending related to the grant project after June 30th of your grant year. Examples of sustainability costs include annual professional development, equipment maintenance, and software license agreements. To every extent possible, rationale for the specific amounts given should be outlined. The costs outlined in the narrative section should be consistent and verified by the financial documentation submitted and explained in the Financial Impact Table. If the project does not have sustainability costs, applicants should explain why.

Yes - If yes, provide a narrative explanation of your sustainability costs as detailed in the Financial Impact Table in the box below.

No - If no, please explain why (i.e. maintenance plan included in purchase price of equipment) in the box below.

There are no continuing maintenance or sustaining costs for SOILabs after June 30, 2015. SOILabs by design must build in sustainability and processes for long term use into the design of each SOILab. PD and open access to TPBL modules enables greater shared resources at no cost. Thus, there are no costs to SOILabs beyond the life cycle of this grant. In addition, there are no new or recurring costs required to maintain the GROWING SOIL outdoor network. Funds requested in this proposal are used for non-recurring design and development expenses. Once complete, will have constructed 15 outdoor learning spaces, and established at least 120 unique curriculum modules that can be used by all consortia schools through the open access platform. By adding partnerships with other schools and educational programs SOIL will reach out into the community reaching 30 schools at no further cost. Teacher salaries and activities at each school can be carried out into the future at their current funding levels. Further, the operation of the KI Field Station as a curriculum prototyping center is incorporated into the KI district budget at its current funding level, and this has been demonstrated through their prior investments in transforming the district over the period 2011-2014.

13. Will there be any costs incurred as a result of maintaining and sustaining the project after June 30th of your grant year?

Sustainability costs include any ongoing spending related to the grant project after June 30th of your grant year. Examples of sustainability costs include annual professional development, equipment maintenance, and software license agreements. To every extent possible, rationale for the specific amounts given should be outlined. The costs outlined in the narrative section should be consistent and verified by the financial documentation submitted and explained in the Financial Impact Table. If the project does not have sustainability costs, applicants should explain why.

Yes - If yes, provide a narrative explanation of your sustainability costs as detailed in the Financial Impact Table in the box below.

No - If no, please explain why (i.e. maintenance plan included in purchase price of equipment) in the box below.

There are no continuing maintenance or sustaining costs for SOILabs after June 30, 2015. SOILabs by design must build in sustainability and processes for long term use into the design of each SOILab. PD and open access to TPBL modules enables greater shared resources at no cost. Thus, there are no costs to SOILabs beyond the life cycle of this grant. In addition, there are no new or recurring costs required to maintain the GROWING SOIL outdoor network. Funds requested in this proposal are used for non-recurring design and development expenses. Once complete, will have constructed 15 outdoor learning spaces, and established at least 120 unique curriculum modules that can be used by all consortia schools through the open access platform. By adding partnerships with other schools and educational programs SOIL will reach out into the community reaching 30 schools at no further cost. Teacher salaries and activities at each school can be carried out into the future at their current funding levels. Further, the operation of the KI Field Station as a curriculum prototyping center is incorporated into the KI district budget at its current funding level, and this has been demonstrated through their prior investments in transforming the district over the period 2011-2014.

14. Will there be any expected savings as a result of implementing the project?

Yes

Applicants with sustainability costs in question 13 or seeking to achieve significant advancement in spending reductions in the five-year forecast must address this response. Expected savings should match the information provided by the applicant in the Financial Impact Table. All spending reductions must be verifiable, permanent, and credible. Applicants may only respond “No” if the project will not incur any increased costs as a result of maintaining and sustaining the project after June 30th of your grant year. The Governing Board will use the cost savings as a tiebreaker between applications with similar scores during its final selection process. Cost savings will be calculated as the amount of expected cost savings less sustainability costs relative to the project budget.

9,791,949.00 If yes, specify the amount of annual expected savings. If no, enter 0.

If yes, provide details on the expected savings (i.e. staff counts and salary/benefits, equipment to be purchased and cost, etc.). If no, please explain.

By 2020 the GROWING SOIL consortium of 10 districts reaching from North Central to Southeast OH expects an impressive cost reduction of $50,168,369. The FY16 combined cost reduction of the 10 districts is $9,791,949. The 10 districts involved in GROWING SOIL expect expenditures of $1,270,878,521 in FY2014 and base all future cost reductions against this amount. District Treasurers submitted both the projected expenditures, and cost reduction calculations for the purposes of this grant. The details of the expenditures for FY14 as reported by District Treasurers are as follows for the 10 districts: 1. Salaries: $614,411,361 2. Fringe Benefits: $254,744,360 3. Purchased Services:
15. Provide a brief explanation of how the project is self-sustaining.

All Straight A Fund grant projects must be expenditure neutral. For applications with increased ongoing spending as documented in question 11-14, this spending must be offset by expected savings or reallocation of existing resources. These spending reductions must be verifiable, permanent, and credible. This information must match the information provided in your Financial Impact Table. Projected additional income may not be used to offset increased ongoing spending because additional income is not allowed by statute. Please consider inflationary costs like salaries and maintenance fees when considering whether increased ongoing spending has been offset for at least five years after June 30th of your grant year. For applications without increased ongoing spending as documented in questions 11-14, please demonstrate how you can sustain the project without incurring any increased ongoing costs.

For educational service centers and county boards of developmental disabilities that are members of a consortium, any increased ongoing spending at the educational service center or county board of developmental disabilities may also be offset with the verifiable, permanent, and credible spending reductions of other members of the consortium. This increased ongoing spending must be less than or equal to the sum of the spending reductions for the entire consortium.

Explain in detail how this project will sustain itself for at least five years after June 30th of your grant year.

GROWING SOIL is designed to establish framework, mechanisms, and processes that are intended to expand, elevate, and sustain both the SOILabs and their partnering communities. SOIL established a model for developing sustainable outdoor innovation labs. GROWING SOIL replicates the SOIL model for planning and building new SOILabs. Simultaneously, GROWING SOIL will build a new model that expands the programs to include more schools, business/industry and post secondary institutions. The new model will include ongoing STEM TPBL curricula and professional development, mechanisms for partnerships that reach beyond K12 into post secondary and workforce development, and platforms for access and communications that makes it possible for partners to buy-in, share resources, and expand innovative learning centers. Like the original SOIL model the GROWING SOIL model will be replicable and leverage Straight A funding, not rely on it. STEM Outdoor Innovation Labs take advantage of untapped existing resources within schools without impacting existing budgets. GROWING SOIL will establish the underpinning components that reinforce growth and sustainability across a wider footprint so that SOIL can expand and grow organically without impact to school budgets. GROWING SOIL takes advantage of open access technology and existing technological access in schools to develop a framework in which teachers and partners can schedule, share resources, and further develop rigorous and relevant curricula that amplifies academic achievement and workforce development. Open access to virtual brainstorms and TPBL platform will provide the foundational structure, organizational framework, and mechanisms, alongside the TPBL processes that make GROWING SOIL a self-sustaining program for OH.

D) IMPLEMENTATION - Timeline, scope of work and contingency planning

16. Please provide a brief description of the team or individuals responsible for the implementation of this project, including other consortium members and/or partners.

This response should include a list of qualifications for the applicant and others associated with the grant. If the application is for a consortium or a partnership, the lead should provide information on its ability to manage the grant in an effective and efficient manner. Include the partner/consortium members’ qualifications, skills and experience with innovative project implementation and projects of similar scope.

Enter Implementation Team information by clicking the link below:

Add Implementation Team

For Questions 17-19 please describe each phase of your project, including its timeline, scope of work, and anticipated barriers to success.

A complete response to these questions will demonstrate specific awareness of the context in which the project will be implemented, the major barriers that need to be overcome and the time it will take to implement the project with fidelity. A strong plan for implementing, communicating and coordinating the project should be outlined, including coordination and communication in and amongst members of the consortium or partnership (if applicable). It is recognized that specific action steps may not be included, but the outline of the major implementation steps should demonstrate a thoughtful plan for achieving the goals of the project. The timeline should reflect significant and important milestones in an appropriate and reasonable time frame.

17. Planning - Activities prior to the grant implementation

* Date Range 8/2014 thru 3/2015

* List of scope of work (activities and/or events including project evaluation discussions, communication and coordination among entities).

Planning 8/2014–10/2014 and 1/2015-3/2015 GROWING SOIL builds upon the planning, implementation, and lessons learned in the Straight A funded SOIL. SOIL established a clear list of school expectations, timeline events, project deliverables, and workshops as well as a platform through which to organize, communicate and report. GROWING SOIL will replicate the SOIL process for the Cohort II new SOILabs by holding planning workshops and school charettes to facilitate planning for the outdoor learning centers. Planning for 6 KI prototyping field experiences will occur and be finalized so that implementation of the programs take place between mid 9-10/2014. Formative evaluation of the programs will be used to inform the second phase of planning in 1/2015, when the project team plans for the second set of 6 KI environmental programs slated for 5-6/2015. Finally, the initial planning around PD online courses, workshops, the open access platform for TPBL modules, Virtual Brainstorms, and evaluation will occur in 8/2014 with the intent to begin design and implementation immediately. All phases of the planning will be reports in weekly debriefings, the monthly budget debriefs, and through ongoing communications on Basecamp7. Public presentations mark the end of each planning phase and the beginning of SOILab construction or expansion for both cohorts. 8/2014: Team planning and finalization of workshop dates and evaluation events. 9/2014: Planning workshops for Cohorts I & II;
### List of scope of work (activities and/or events, including quantitative and qualitative benchmarks and other project milestones).

18. Implementation - Process to achieve project goals

* Date Range 9/2014 thru 6/2015

* List of scope of work (activities and/or events, including deliverables, project milestones, interim measurements, communication, and coordination).

Implementation 9/2014 - 6/2015 & Network Building 7/2015 - 6/2018 The GROWING SOIL implementation phase will begins within a month of funding and in some cases parallels planning. After 6/2015 SOIL will enter the network building, phase. Between summer 2015 and spring 2018 the SOIL network will focus on implementing the framework, mechanisms and processes to develop a robust program that is able to continue to grow organically. To assist in the transition from implementation to sustaining GROWING SOIL has scheduled professional development, virtual brainstorms, and the population of the open access platform for TPBL modules. These scheduled events establish a set of implementation habits that enable and amplify the sustainability of the SOIL model. 9/2014: Planning Workshops: Cohort I implementation of SOIL TPBL; Ki Field Programs (6); Survey data for students attending Ki; Teacher surveys; Charette visits for Cohort II; Site visits for Cohort I buddies. 10/2014: Presentation Workshops 11/2014: Initiate construction and/or expansion; Online PD; Initiation of Virtual Brainstorms (monthly) 1/2015: PD Workshop for TPBL development; Final presentations for Cohort II 2/2015: Planning workshops for Cohort I; Cohort II implementation of TPBL modules with partners 4/2015: Online PD offered 5/2015: Ki Field Programs (6) 6/2015: PD workshops for TPBL development; Focus Groups 9/2015: Virtual Brainstorms run monthly Sept to June 11/2015: PD workshops for TPBL development 6/2016: PD workshops for TPBL development 11/2016: PD workshops for TPBL development 6/2017: PD workshops for TPBL development 11/2017: PD workshops for TPBL development 6/2018: PD workshops for TPBL development

* Anticipated barriers to successful completion of the implementation phase.

Actions to Address Potential Barriers: Implementation of the project and has a three-pronged approach to simultaneously construct or expand SOILabs at the individual school sites, expose teachers and students to the outdoor lab experience at Ki Field Station, and design and align new TPBL modules for implementation at SOILabs. This is longest phase in order to accommodate the necessary activities that take place. The established communications plan and the proactive systems set in place to avoid potential impediments are designed to bring each of the participating schools through building labs, and designing and running TPBL modules. 1. Engage stakeholders: Implementing directly engages stakeholders to accommodate the array of activities taking place. This phase includes the entire planning team, community contractors, participating schools (teachers and students), Ki Field Station, and PAST's PD team. 2. Communication: Participating SOIL teams along with the project team have finished plans to guide build. Statement of Invention track progress and modifications. All will be posted to Basecamp so that questions can be posed and answered, and real time course corrections can be implemented without affecting the pace of the project. Informative packets prepare teachers and students for the Ki experience. PD will step teachers be through the process of creating TPBL modules that draw on their experience at Ki, clearly lay out activities and expectations, and are aligned and benchmarked to educational standards. All modules will be posted openly online providing access to all OH teachers. 3. Ongoing Support: Scheduled Virtual Brainstorms and regular PD will proactively address the continued development and sustainability of SOIL. The field experiences are designed to accommodate inclement weather, as well. The schedules for the field station also consider the testing schedules for GGT and OAA so that all of the participating schools.

19. Summative Evaluation - Plans to analyze the results of the project

* Date Range 8/2014 thru 9/2015

* List of scope of work (activities and/or events, including quantitative and qualitative benchmarks and other project milestones).

Summative Evaluation 8/2014-9/2015 GROWING SOIL will use qualitative and quantitative data to inform summative evaluation of project impact and fidelity. In the first round of SOIL, the project team established a number of data capturing tools and benchmarks to assess progress qualitatively and quantitatively. Qualitative data was translated into quantitative information to create readily comparable data for summative evaluation of fidelity to the grant proposal and short-term student growth. These tools and benchmarks will be repeated and expanded. Pre and post short cycle data of students attending the Ki field experience will be collected for each program and used as summative evaluation of immediate impact of applied learning. Each module also has a set of associated standards-based questions that directly reflect short-term achievement and gap assessment. Results from the implementation of TPBL modules will establish an ongoing system of short cycle summative evaluation that continues long after the duration of this grant period. All of the summative information in terms of achievement impact will be reported through the external evaluation of the grant. Quarterly reports will be submitted to the external evaluator for review and advisement for real time course correction. The collective information on impact learned from GROWING SOIL will be presented in the final report and at professional meetings. 10/2014: Workshop Observations; New Teacher surveys; collection of student Ki surveys 1/2015: External interim report 3/2015: New Teacher surveys 5/2015: Collection of student Ki surveys 6/2015: Focus Groups; External
Actions to Address Potential Barriers: Summative, Formative, and External evaluation of the project extends across all phases collecting data, evidence of benchmarks met, products produced, in addition to pre and post survey data for interim and final reports and continuous course correction. The summative evaluation data will include pre and post surveys for short-term assessment and standardized test scores for baseline. Qualitative pre and post teacher, surveys with focus groups will be analyzed and translated quantitatively for presence and absence themes, to track professional growth among participating teachers. 1. Engage stakeholders: Through observation, surveys and focus groups the Formative evaluation team will engage stakeholders producing guidance for lasting change. Through external evaluation SOIL will be able to track fidelity to design and implementation as well as impact. 2. Communication: All surveys and focus groups will clearly communicate to participants the anonymous nature of participation in keeping with IRB protocols. All summative data will be aggregated and tracked against standards and implementation to inform administrators on teacher effectiveness and coverage of student learning objectives. 3. Ongoing support: Through the online access SOIL will continue to inform teachers and administrators regarding rigor, relevance and effectiveness.

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

The response should illustrate the critical instructional and/or organizational changes that will result from implementation of the grant and the impact of these changes. These changes can include permanent changes to current district processes, new processes that will be incorporated or the removal of redundant or duplicative processes. The response may also outline the expected change in behaviors of individuals (changes to classroom practice, collaboration across district boundaries, changes to a typical work day for specific staff members, etc.). The expected changes should be realistic and significant in moving the institution forward.

Please enter your response below:

GROWING SOIL will expand and elevate changes already appearing in the SOIL project. These changes are particularly apparent in organizational, communication and instructional practices at participating schools. It is the goal of GROWING SOIL to expand change out to K-16 partnerships and into community and businesses. The mechanisms and processes developed in SOIL to amplify success began with the emphasis on articulated project expectations and outcomes, followed by content rich, workshops and site visit support. A communication platform enabled the cohort and team access to advice and peer-to-peer assistance, amplifying success. The experience at the KI field programs modeled for teachers what applied learning looks like, and how to implement TPBL. Building STEM TPBL modules from start to finish empowers the teachers with a rich understanding of expectations, how to implement, and finally how to benchmark progress. The SOIL tools enhanced by an expanded network, greater reach into the community, an expansion into workforce development, and a platform where teachers can readily share work and evidence will serve to underpin SOIL sustainability and accelerate change in instructional strategies across OH. SOIL is already changing the use of previously untapped resources in schools, promoting applied learning, and modeling rapid transformation techniques that empower teachers to change the concept of outdoor learning centers. Unexpected changes not predicted in SOIL, such as use of the construction in TPBL modules, rapid buy-in from all content areas, and immediate reach into the community for partnerships has informed GROWING SOIL regarding where new emphasis in planning and support are needed. All changes will be studied through the Formative evaluation process and used to regularly inform the project team for real time course correction and further project amplification.

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

The responses in this section are focused on the ability to design a method for evaluating the project’s capacity for long-term sustainable results. Therefore, the questions focus on the method of defining the problem(s) the project hopes to solve and the measures that will determine if the problem(s) have been solved.

21. 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.

The response should provide a concise explanation of items which provide rationale that will support the probability of successfully achieving the goals of the project. Answers may differ based on the various levels of development that are possible. If the proposal is for a new, never before implemented project, the response should provide logical, coherent explanations of the anticipated results based on some past experience or rationale. For projects that have been implemented on a smaller scale or successfully in other organizations, the response should provide the quantifiable results of the other projects. If available, relevant research in support of this particular proposal should also be included.

Please enter your response below.

Daniel Pink writes in his book, A Whole New Mind, “according to the latest research, IQ accounts for between 4 -10 % of career success “(Pink 2006) He suggests, “to be successful one must be able to see the big picture, synthesize what is seen, and understand the meaning in patterns.” Applied learning in real world situations provides 90% of successful learning. Creating innovative labs where students can explore, tackle problems, and find solutions is SOIL’s response to the memorizing theories practice, part of traditional classrooms’ instructional strategy. SOIL appeals to the 90% of learning necessary for critical thinking across all content areas. SOIL pivots on resonant, STEM curricula designed by teachers for students and crosses content with Language Arts, Humanities, and Design. Recent data from TPBL schools reveals that the applied approach when pivoted in STEM topics, culturally relevant, with an articulated delivery, raises student achievement from proficient to advanced, by several percentage points, across all content areas (SDIL 2013). Data from PAST Bridge Programs helped low performing Math students, rise to grade level (I Know I Can 2010). The SOIL program used this research for informing where the greatest need for learning context lies, and how this approach will impact overall student achievement. By combining research regarding the importance of applied learning with research that acknowledges the benefits of outdoor experience and exploration, SOIL melds powerful learning strategies with robust delivery. The replicable TPBL process used by SOIL teachers to build curricula complements a number of theoretical perspectives including Bloom, Webb, and Danielson (Bloom 1954, Webb 2005, Danielson 2013). The evidence produced in planning TPBL modules leads directly to formative and summative evaluation by teacher, student and administrators. This process enables teachers to take theory to practice and students to take knowledge to understanding.
22. Describe the overall plan to evaluate the impact of the concept, strategy or approaches used in the project.

This plan should include the methodology for measuring all of the project outcomes. Applicants should make sure to outline quantitative approaches to assess progress and measure the overall impact of the project proposal. The response should provide a clear outline of the methods, process, timelines and data requirements for the final analysis of the project's progress, success or failure. The applicant should provide information on how the lessons learned from the project can and will be shared with other education providers in Ohio.

* Include the name and contact information of the person who will be responsible for conducting the evaluation and whether this will be an internal or external evaluation.

Overall Plan and Evaluators

The overall evaluation plan of GROWING SOIL is to conduct both formative and external evaluation to ensure both real time, course correction occurs during project implementation, and that the implementation of the grant is consistent with the proposal goals and objectives. GROWING SOIL will use the PAST Foundation’s Knowledge Capture team and process for formative evaluation, and Kate Harkin of HCS as the external evaluator. The combined use of formative and external evaluation is intended to aid GROWING SOIL, in determining the most effective modifications during the course of the grant, and regularly assess the fidelity of GROWING SOIL to the proposed project's goals and objectives, as well as review evidence of change and impact. Evaluation will be embedded within the project from planning to completion. As learned in the SOIL project, funded through the Straight A I, evaluation plays a key role in keeping the project focused, responsive, on budget, and on time.

* 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 project's progress).

Methodology

The methodology of the GROWING SOIL evaluation team, headed by Dr. Monica Hunter (Formative Evaluation) and Kate Harkin (External Evaluation), will use a mixed-methods approach, which combines both qualitative and quantitative assessments, producing interim reports for real time course correction. The formative evaluation will combine key informant interviews, focus groups, and online surveys capturing the views of teachers and administrators to identify enabling strategies and constraints. Directed focus groups will establish in-depth, thematic understanding of presence/absence of essential progress toward attaining project outcomes that can be quantitatively translated to help prioritize strategies. Pre- and post-surveys will be employed to track change over time toward implementation. Monitoring the ongoing processes of planning and implementation will also be tracked by structured observation of critical implementation activities. All observations and findings will be reported to the project team leading to informed modification of the implementation strategy. Standardized test scores will be tracked pre grant and post grant as a reflection of change and impact. Standardized test scores will dramatically change emphasis during the course of this grant, however, OAA, OGT, and eventually PARK scores will be collected and compared to track long-term impact of applied learning promoted by SOILabs and the TPBL curricula. The external evaluation will monitor and review articulated deliverables and outcomes for evidence of fidelity of implementation and educational impact.

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

Plan for Modification

The plan for modification of GROWING SOIL combines formative and external evaluation in a multi-faceted approach. The formative evaluators will provide the project team regular, structured communication on system dynamics regarding corrective actions that amplify desired change and address constraints. At the end of each school term (fall, spring and summer) the formative evaluation team will submit an interim report to the project team and external evaluator for review. The external evaluator will review all progress on the grant and submit reports at the end of each school term, and provide an interim assessment on grant alignment with proposed actions within program, timeline, and deliverables. Both formative and external evaluators will submit a final report to the project team at close of the 2015 fall term. The information garnered from the formative and external evaluation will be shared through a published report available online digitally and through presentations at professional meetings for applied research and evaluation.

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

The response should provide specific quantifiable measures of the grant outcomes and how the project will lead to successful attainment of the project goals. Applicants should describe how the program or project will continue after the grant period has expired.

Please enter your response below.

Funding GROWING SOIL expands and elevates the lasting impacts begun in the Straight A funded SOIL project. The proposed structure and support of GROWING SOIL creates a larger footprint for sustainability, resources sharing, and cost effectiveness. This project provides stimulus for 1) 6 new SOILabs that extend the network from northern OH to SE OH 2) Expansion of original 9 SOILabs programs as they extend out into the community 3) 15 new buddy programs that expand SOIL K-12 4) 30 Business Partnerships that elevate SOILabs to new frontiers 5) 30 Post Secondary partnerships that enrich SOIL and programs 6) 12 weeks of KI environmental (240 students & 42 teachers) that demonstrate the value of applied learning 7) PD for 60 teachers that support the transformation to applied learning 8) 120 Additional TPBL modules (2/teacher) that expands the depth of sharable curricula 9) 4500 directly impacted (3/classes/teacher x 25 students/class x 60 teachers) that changes the face of OH education 10) Access for 106,365 teachers to rigorous and relevant TPBL modules The lasting impact of GROWING SOIL includes 1) Reduced reliance on costly off the shelf textbooks enables SOILabs to maintain current and relevant curricula that is aligned to standards, provides Student Learning Objectives, gap assessment, and evidence of teacher effectiveness. In some districts this represents millions of dollars in savings. 2) Increased access to STEM TPBL modules that are cross content, vertically scalable, and readily benchmarked accelerates the transition of instructional strategies to applied learning saving districts PD costs over time. 3) Ongoing PD supports the transformation from theory to practice for teachers transitioning to applied learning. 4) Increased comfort among students with applied learning leads to better academic achievement, which in turn reduces remediation costs at individual schools. GROWING SOIL provides the OH STEM with the nutrients for lasting educational transformation.

24. Describe the specific benchmarks, by goal as answered in question 9, which 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.

The applicant should provide details on the quantifiable measures of short- and long-term objectives that will be tracked and the source of benchmark comparative data points. Responses should include specified measurement periods and preliminary success points that will be used to validate successful implementation of the project. If a similar project has been successfully implemented in other districts or schools, identification of
25. Is this project able to be replicated in other districts in Ohio?

☐ Yes
☐ No

*If the applicant selects "Yes" to the first part of the question, the response should provide an explanation of the time and effort it would take to implement the project in another district, as well as any plans to share lessons learned with other districts. To every extent possible, applicants should

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**Goal 1 Benchmarks: Student Achievement**

GROWING SOIL will benchmark student achievement by:

1. Pre and Post survey quizzes associated with the concepts presented at the KI educational prototyping field station. The short survey quizzes are to summatively and formatively assess baseline knowledge of students and growth over the course of the intensive, immersion in environmental learning outdoors. Use of pre and post short cyclequizing as established by physicists Reddi and Mazur provide excellent diagnostics for differentiation of learning, gap assessment, and growth across the domains of learning established by both Bloom and Webb (Bloom 1956, Webb 2005).

2. Short cycle assessments associated with each STEM TPBL module provide regular and standards-based formative and summative assessment to teachers assisting in real time differentation and customized learning while the TPBL modules are underway.

3. State and National standardized tests will provide long-term comparative analysis to gauge impact. The transition in focus of standardized tests from Memorization to Applied Learning will further enable study of impact on student achievement by those using the SOILab resources in all content areas. Consistent short cycle and annual standardized testing enable students and teachers to formatively assess and course correct depth of delivered content in TPBL modules as well as provide quantifiable summative indicators for short and long term impact on achievement.

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**Goal 2 Benchmarks: Spending reductions in the five-year fiscal forecast**

GROWING SOIL will benchmark spending reduction over the 5 years by:

1. The number of STEM TPBL modules created and shared by teachers across OH. At an average of $29/module on the open market the production of curricula that is replicable, modifiable for vertical rise in standards, benchmarked against standardized questions, and relevant provides all OH teachers and schools with a valuable resource that is cost effective.

2. Open access to SOIL STEM TPBL modules reduces the costs of expensive proprietary programs and increases the bank of relevant materials for Ohio teachers and students.

3. The employment of TPBL and the SOILabs increases student engagement by creating systematic, applied learning and thus increases student achievement. Increased student achievement will reduce the need for expensive remediation and thus reduce school costs overall.

4. The employment of TPBL and SOILabs increases student engagement with hands on and applied activities that will reduce the disruptive behavior in class.

5. Engagement spurs curiosity and increases achievement. The drop in behavioral issues reduces the time and paperwork associated with punishment, thus reducing overall costs. Remediation and behavior management consume an inordinate amount of faculty time and resources. The reduction of both of these issues will reduce direct costs to schools and free faculty time for planning and more positive activities. The creation of STEM TPBL curricula that is relevant and rigorous will continue to provide savings to schools and districts long after the SOIL grant is expended.

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**Goal 3 Benchmarks: Utilization of a greater share of resources in the classroom**

GROWING SOIL will benchmark utilization of a greater share of classroom resources by:

1. The continuing submission of STEM TPBL modules aligned to standards and complementary to Teacher Effectiveness and Student Learning Objectives as an outgrowth of facilitated PD. The study of quantity, quality and breadth of the TPBL modules has potential beyond the scope of this grant and will be continually evaluated and assessed. Teachers outside of the initial planning teams have already begun to work problems and projects into their TPBL planning around the creation of the SOILabs.

2. Change in teacher comfort quotient in facilitating TPBL projects reflected in ongoing Formative evaluation. Quantitative feedback from teacher focus groups on impact of experience guides and informs real time course correction to insure teachers get maximum benefit from the field experience (GearUp 2013).

3. Use of the Virtual Brainstorms. Quantitatively tracked over time and reported to evaluation team. Virtual Brainstorms among diverse cohorts accelerates adoption of TPBL strategies and generates other innovative projects (SD Innovation Lab 2014). Mechanisms and processes that enable and empower teachers in the exploration and creation of curricula for the SOILabs support the benchmarks for Goal 3. The explicit nature of the deliverables enables the Formative and External evaluation team to study impact and guide ongoing course correction in implementation.

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**Goal 4 Benchmarks: Implementation of a shared services delivery model**

GROWING SOIL will benchmark implementing shared services by:

1. 15 SOILabs completed across OH by 12/2014. Nine of the SOILabs will be ready for expansion by 8/2014. 30 partnered SOILabs programs by 6/2015.

2. Schools are inquiring about partnering with the original 9 SOILabs. 30 business/industry partners working with 30 SOILab programs. PR generated by the 9 SOILabs has initiated inquiries from businesses about becoming sponsors and how to share resources for workforce development in horticulture, management, and teacher pre-service.

3. SOILabs take advantage of partnerships with Straight A funded programs to expand content offered.

4. Discussions with Pathways to Prosperity Mobile FabLabs reveal that partnerships are possible. Schools who have experienced KI field station environmental programs are eager to return and expose more students to immersive applied learning.

5. Establish partnerships with collegiate programs across OH. Hocking College, Ohio University, Columbus State Community College, Ashland, and Otterbein have extended their expertise forming working relationships with the 9 SOILabs and KI Field Station creating opportunities for K-12 students and college students.

6. Completion of all professional development by 60 teachers and the development of STEM TPBL modules, and 7) Access and use of the web platform that houses the completed STEM TPBL modules. Data shows that teachers propagate and use TPBL modules that have evidence of effective planning, time management, standards alignment, Student Learning Objectives, short cycle assessment, and visuals of implementation by students. The benchmarks are set in a deliberate and articulated fashion. They can be quantifiably assessed and qualitatively studied. GROWING SOIL has the ability to help change student achievement, teacher effectiveness, workforce development and community.

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**Other Anticipated Outcomes**

- Remediation and behavior management consume an inordinate amount of faculty time and resources.
- The reduction of both these issues will reduce direct costs to schools and free faculty time for planning and more positive activities.
- The creation of STEM TPBL curricula that is relevant and rigorous will continue to provide savings to schools and districts long after the SOIL grant is expended.

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**Remediation and behavior management**

- Consistent short cycle and annual standardized testing enable students and teachers to formatively assess and course correct depth of delivered content in TPBL modules as well as provide quantifiable summative indicators for short and long term impact on achievement.

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**Spending Reduction in the five-year fiscal forecast**

- Goal 2 Benchmarks: Spending reductions in the five-year fiscal forecast GROWING SOIL will benchmark spending reduction over the 5 years by:
  1. The number of STEM TPBL modules created and shared by teachers across OH. At an average of $29/module on the open market the production of curricula that is replicable, modifiable for vertical rise in standards, benchmarked against standardized questions, and relevant provides all OH teachers and schools with a valuable resource that is cost effective.
  2. Open access to SOIL STEM TPBL modules reduces the costs of expensive proprietary programs and increases the bank of relevant materials for Ohio teachers and students.
  3. The employment of TPBL and the SOILabs increases student engagement by creating systematic, applied learning and thus increases student achievement.
  4. Increased student achievement will reduce the need for expensive remediation and thus reduce school costs overall.
  5. The employment of TPBL and SOILabs increases student engagement with hands on and applied activities that will reduce the disruptive behavior in class.
  6. Engagement spurs curiosity and increases achievement.
  7. The drop in behavioral issues reduces the time and paperwork associated with punishment, thus reducing overall costs.
  8. Remediation and behavior management consume an inordinate amount of faculty time and resources.
  9. The reduction of both these issues will reduce direct costs to schools and free faculty time for planning and more positive activities.
  10. The creation of STEM TPBL curricula that is relevant and rigorous will continue to provide savings to schools and districts long after the SOIL grant is expended.

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**Utilization of a greater share of resources in the classroom**

- Goal 3 Benchmarks: Utilization of a greater share of resources in the classroom GROWING SOIL will benchmark utilization of a greater share of classroom resources by:
  1. The continuing submission of STEM TPBL modules aligned to standards and complementary to Teacher Effectiveness and Student Learning Objectives as an outgrowth of facilitated PD. The study of quantity, quality and breadth of the TPBL modules has potential beyond the scope of this grant and will be continually evaluated and assessed.
  2. Teachers outside of the initial planning teams have already begun to work problems and projects into their TPBL planning around the creation of the SOILabs.
  3. Change in teacher comfort quotient in facilitating TPBL projects reflected in ongoing Formative evaluation.
  4. Quantitative feedback from teacher focus groups on impact of experience guides and informs real time course correction to insure teachers get maximum benefit from the field experience (GearUp 2013).
  5. Use of the Virtual Brainstorms. Quantitatively tracked over time and reported to evaluation team.
  6. Virtual Brainstorms among diverse cohorts accelerates adoption of TPBL strategies and generates other innovative projects (SD Innovation Lab 2014). Mechanisms and processes that enable and empower teachers in the exploration and creation of curricula for the SOILabs support the benchmarks for Goal 3.
  7. The explicit nature of the deliverables enables the Formative and External evaluation team to study impact and guide ongoing course correction in implementation.

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**Implementation of a shared services delivery model**

- Goal 4 Benchmarks: Implementing a shared services delivery model GROWING SOIL will benchmark implementing shared services by:
  1. 15 SOILabs completed across OH by 12/2014. Nine of the SOILabs will be ready for expansion by 8/2014. 30 partnered SOILabs programs by 6/2015.
  2. Schools are inquiring about partnering with the original 9 SOILabs.
  3. 30 business/industry partners working with 30 SOILab programs.
  4. PR generated by the 9 SOILabs has initiated inquiries from businesses about becoming sponsors and how to share resources for workforce development in horticulture, management, and teacher pre-service.
  5. SOILabs take advantage of partnerships with Straight A funded programs to expand content offered.
  6. Discussions with Pathways to Prosperity Mobile FabLabs reveal that partnerships are possible.
  7. Schools who have experienced KI field station environmental programs are eager to return and expose more students to immersive applied learning.
  8. Establish partnerships with collegiate programs across OH.
  9. Hocking College, Ohio University, Columbus State Community College, Ashland, and Otterbein have extended their expertise forming working relationships with the 9 SOILabs and KI Field Station creating opportunities for K-12 students and college students.
  10. Completion of all professional development by 60 teachers and the development of STEM TPBL modules, and 7) Access and use of the web platform that houses the completed STEM TPBL modules.
  11. Data shows that teachers propagate and use TPBL modules that have evidence of effective planning, time management, standards alignment, Student Learning Objectives, short cycle assessment, and visuals of implementation by students.
  12. The benchmarks are set in a deliberate and articulated fashion. They can be quantifiably assessed and qualitatively studied.

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**These comparable benchmarks should be included.**

- Goal 1 Benchmarks: Student Achievement GROWING SOIL will benchmark student achievement by:
  1. Pre and Post survey quizzes associated with the concepts presented at the KI educational prototyping field station.
  2. Short cycle assessments associated with each STEM TPBL module provide regular and standards-based formative and summative assessment to teachers assisting in real time differentation and customized learning while the TPBL modules are underway.
  3. State and National standardized tests will provide long-term comparative analysis to gauge impact.

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

☐ Yes
☐ No

*If the applicant selects "Yes" to the first part of the question, the response should provide an explanation of the time and effort it would take to implement the project in another district, as well as any plans to share lessons learned with other districts. To every extent possible, applicants should...*
### Outline

How this project can become part of a model so that other districts across the state can take advantage of the learnings from the proposed innovative project. If there is a plan to increase the scale and scope of the project within the district or consortium, it should be included here.

* Explain your response

GROWING SOIL is proof of replication for the Straight A funded SOIL, which is being successfully implemented as a rapid implementation of applied learning centers in Spring 2014. GROWING SOIL intends to expand and elevate the model so that footprint of SOIL expands from a single school to multiple schools (9-30), from solely academic impact to workforce development, and from a school-based network to a community-based network. Well articulated planning, clear expectations and deliverables define SOIL. Building this model forward means the continuation of well articulated planning and implementation that leads to a strong network with sustainable framework, mechanisms, and processes that promote growth and replication. Following the bar set by SOIL, GROWING SOIL has a set of deliverables that grow capacity. Expanded use of the SOILabs impacts cost savings and shared resources across schools and communities. The format of STEM TPBL modules complements new initiatives for Teacher Effectiveness and Student Learning Objectives and will be available through open access for teachers across OH to replicate and/or modify to fit the differentiated needs of their students. By designing the GROWING SOIL model to be agile and flexible, the SOIL network will be able to grow and serve as a model for other networked communities to emulate. In turn, this model has the potential to accelerate Ohio education’s shift toward applied learning strategies that dramatically affect student achievement and workforce development.

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 time frame. The Governing Board of the Straight A Fund reserves the right to conduct an evaluation of the project and request additional information in the form of data, surveys, interviews, focus groups and other related data on behalf of the General Assembly, Governor and other interested parties for an overall evaluation of the Straight A Fund.

**PROGRAM ASSURANCES:** I agree, on behalf of this applicant, and any or all identified consortium members or partners, that all supporting documents contain information approved by a relevant executive board or its equivalent and to abide by all assurances outlined in the Straight A Assurances (available in the document library section of the CCIP).
<p>| First Name | Last Name     | Telephone Number | Email Address                     | Organization Name                          | IRN   | Address                                      | Delete Contact |
|------------|---------------|------------------|-----------------------------------|--------------------------------------------|-------|----------------------------------------------|----------------|    |
| Stephanie  | Lammlein      | 330.325.6169     | <a href="mailto:slammlein@biomedscienceacademy.org">slammlein@biomedscienceacademy.org</a>| Bio-Med Science Academy STEM School        | 014231| 4209 State Route 44, Rootstown, OH, 44272-9698|                |
| Meka       | Pace          | 614.247.2276     | <a href="mailto:pace@themetroschool.org">pace@themetroschool.org</a>           | Metro Early College High School           | 012391| 1929 Kenny Rd, Columbus, OH, 43210-1015     |                |
| Meka       | Pace          | 614.247.2276     | <a href="mailto:pace@themetroschool.org">pace@themetroschool.org</a>           | Metro Early College High School           | 012391| 1929 Kenny Rd, Columbus, OH, 43210-1015     |                |
| Randy      | Cotner        | 740.467.2802     | <a href="mailto:rcotner@walnuttsd.org">rcotner@walnuttsd.org</a>             | Walnut Township Local                      | 046904| 11850 Lancaster St, Millersport, OH, 43046  |                |
| Chris      | Walton        | 740.563.7249     | <a href="mailto:chriswalton@fairfield-union.k12.oh.us">chriswalton@fairfield-union.k12.oh.us</a>| Fairfield Union Local                     | 046870| 6417 Cincinnati Zanesville Rd NE, Lancaster, OH, 43130-9323|                |
| Jaclyn     | Angle         | 614.367.1600     | <a href="mailto:jangle@reyn.org">jangle@reyn.org</a>                   | Reynoldsburg City                         | 047001| 7244 E Main St, Reynoldsburg, OH, 43068-2014|                |
| Scott      | Bennett       | 614.501.2310     | <a href="mailto:sbennett@reyn.org">sbennett@reyn.org</a>                 | Reynoldsburg City                         | 047001| 7244 E Main St, Reynoldsburg, OH, 43068-2014|                |
| Paul       | Bailey        | 614.365.5974     | <a href="mailto:pbailey5748@columbus.k12.oh.us">pbailey5748@columbus.k12.oh.us</a>    | Columbus City School District             | 043802| 270 E State St, Columbus, OH, 43215-4312   |                |
| Jason      | Johnson       | 614.365.5956     | <a href="mailto:JJJohnson5103@Columbus.k12.OH.US">JJJohnson5103@Columbus.k12.OH.US</a>  | Columbus City School District             | 043802| 270 E State St, Columbus, OH, 43215-4312   |                |
| William    | Doerman       | 614.365.5945     | <a href="mailto:wdoerman@Columbus.k12.oh.us">wdoerman@Columbus.k12.oh.us</a>       | Columbus City School District             | 043802| 270 E State St, Columbus, OH, 43215-4312   |                |
| Jack       | Greathouse    | 740.681.7500     | <a href="mailto:j-greathouse@lancaster.k12.oh.us">j-greathouse@lancaster.k12.oh.us</a>  | Lancaster City                           | 044206| 345 E Mulberry St, Lancaster, OH, 43130-3166|                |
| Maria      | Meeker        | 330.761.3195     | <a href="mailto:mmeeker@akron.k12.oh.us">mmeeker@akron.k12.oh.us</a>           | Akron City                                | 043489| 70 N Broadway St, Akron, OH, 44308-1911    |                |
| Phil       | Thiede        | 419.746.2730     | <a href="mailto:PThiede@kelleys.k12.oh.us">PThiede@kelleys.k12.oh.us</a>         | Kelleys Island Local                      | 046797| 2900 Columbus Ave, Sandusky, OH, 44870-5554|                |
| Brian      | Verde         | 740.536.7306     | brianverde@fairfield-union.k12    | Fairfield Union High School               | 011072| 6675 Cincinnati Zanesville Rd NE, Lancaster, OH, 43130-9331|                |
| George     | Wood          | 740.662.6691     | <a href="mailto:gwood@fedhock.com">gwood@fedhock.com</a>                 | Federal Hocking High School               | 011478| 8461 State Route 144, Stewart, OH, 45778-9501|                |</p>
<table>
<thead>
<tr>
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<th>Phone</th>
<th>Email</th>
<th>Organization</th>
<th>Address</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cliff</td>
<td>Bonner</td>
<td>740.662.6691</td>
<td><a href="mailto:cbonner@fedhock.com">cbonner@fedhock.com</a></td>
<td>Federal Hocking Middle School</td>
<td>8461 State Route 144, Stewart, OH, 45778-9501</td>
</tr>
<tr>
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<td>Last Name</td>
<td>Telephone Number</td>
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<tr>
<td>Sheli O.</td>
<td>Smith, PhD</td>
<td>614-340-1204</td>
<td><a href="mailto:shelli@pastfoundation.org">shelli@pastfoundation.org</a></td>
<td>PAST Foundation</td>
<td></td>
</tr>
<tr>
<td>Kate</td>
<td>Harkin</td>
<td>614-886-9084</td>
<td><a href="mailto:kateharkinohio@gmail.com">kateharkinohio@gmail.com</a></td>
<td>Harkin Consulting Services (HCS)</td>
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## Implementation Team

### Cohort I

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<tr>
<th>First Name</th>
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<th>Title</th>
<th>Responsibilities</th>
<th>Qualifications</th>
<th>Prior Relevant Experience</th>
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<tr>
<td>Rich</td>
<td>Rosen, PhD candidate</td>
<td>Founder Indigo Strategies</td>
<td>SOILabs Cohort I: 9 schools, 4 high schools and 5 middle schools. 1. They are prepared to seek out buddy programs in close proximity to them who can take advantage of the new SOILabs, as well as community business/industry partners, and a post secondary partner. 2. They will continue to build TPBL Modules</td>
<td>Successfully completed SOILabs funded by Straight A round I</td>
<td>They are on schedule to successfully complete their SOILabs, field experience at Kelleys Island, and professional development by June 30, 2014. All 9 SOILabs have signed on to participate in GROWING SOIL. They represent urban, suburban, and rural populations, as well as public and charter schools. Akron National Inventors Hall of Fame MS and eSTEM HS are HB119 STEM schools. Rootstown BioMed Science Academy and Metro MS &amp; HS are charter schools. The three West Feeder system schools, West HS, Starling MS, and Westmoor MS are among Columbus City Schools designated STEM schools. All of Cohort I schools are eager to continue with the SOIL program expanding their non-traditional outdoor learning labs.</td>
<td></td>
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| Marie       | Ward, PhD | Superintendent of Fairfield County ESC | GROWING SOIL Liaison Participates in workshops and is available for consultation. | PhD candidate, John Hopkins University, Engineering EducationQualifications: Chairman Board of Trustees, Columbus State Community College | Synergistic Experience: Led STEM Initiatives nationally for Battelle Memorial Institute responsible for founding OH STEM Learning Network & Instrumental in founding Metro Early College High School | |  

| Sheli O.    | Smith, PhD | Director or Programs | GROWING SOIL Project Director, oversees planning and implementation | PhD The University of Pennsylvania in Anthropology Qualifications: Leads innovative team of national STEM Coordinators who design, facilitate, and implement TPBL programs that are partnered with | Synergistic Experience: Directs SOIL Straight A grant & Professional Development facilitation | |  

### Rich Rosen, PhD candidate
- **Responsibilities**
  - SOILabs Cohort I: 9 schools, 4 high schools and 5 middle schools. 1. They are prepared to seek out buddy programs in close proximity to them who can take advantage of the new SOILabs, as well as community business/industry partners, and a post secondary partner. 2. They will continue to build TPBL Modules
- **Qualifications**
  - Successfully completed SOILabs funded by Straight A round I
- **Prior Relevant Experience**
  - They are on schedule to successfully complete their SOILabs, field experience at Kelleys Island, and professional development by June 30, 2014. All 9 SOILabs have signed on to participate in GROWING SOIL. They represent urban, suburban, and rural populations, as well as public and charter schools. Akron National Inventors Hall of Fame MS and eSTEM HS are HB119 STEM schools. Rootstown BioMed Science Academy and Metro MS & HS are charter schools. The three West Feeder system schools, West HS, Starling MS, and Westmoor MS are among Columbus City Schools designated STEM schools. All of Cohort I schools are eager to continue with the SOIL program expanding their non-traditional outdoor learning labs.

### Marie Ward, PhD
- **Responsibilities**
  - GROWING SOIL Liaison Participates in workshops and is available for consultation.
- **Qualifications**
  - PhD candidate, John Hopkins University, Engineering Education
  - Qualifications: Chairman Board of Trustees, Columbus State Community College
- **Prior Relevant Experience**
  - Synergistic Experience: Led STEM Initiatives nationally for Battelle Memorial Institute responsible for founding OH STEM Learning Network & Instrumental in founding Metro Early College High School

### Sheli O. Smith, PhD
- **Responsibilities**
  - GROWING SOIL Project Director, oversees planning and implementation
- **Qualifications**
  - PhD The University of Pennsylvania in Anthropology
  - Qualifications: Leads innovative team of national STEM Coordinators who design, facilitate, and implement TPBL programs that are partnered with
- **Prior Relevant Experience**
  - Synergistic Experience: Directs SOIL Straight A grant & Professional Development facilitation
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<th>Name</th>
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<th>Synergistic Experience</th>
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<tr>
<td>Teacher</td>
<td>Beth Witte, MS</td>
<td>Masters in Science, University of Wisconsin in Mathematics and Education Qualifications: Coordinates Bridge Programs &amp; Design Challenges for PAST</td>
<td>Coordinates all bridge programs including the 9, weeklong field programs for SOIL with a focus on environmental experiences</td>
</tr>
<tr>
<td>External Evaluator</td>
<td>Monica Hunter, PhD</td>
<td>PhD, University of California at Los Angeles, Anthropology Qualifications: Pioneer in the use of ethnographic methods in education evaluation, AEA member</td>
<td>Oversees all the evaluation for SOIL as well as all ongoing evaluation at PAST.</td>
</tr>
<tr>
<td>Consultant</td>
<td>Kate Harkin, MA</td>
<td>MA, The Ohio State University, Policy and Administration Analysis Qualifications: EDGE Certified</td>
<td>Directed P16 Initiative for the OSU Glenn Policy Center and works with establishing transformative community partnerships throughout Ohio</td>
</tr>
<tr>
<td>Professor emeritus</td>
<td>Herb Broda, PhD</td>
<td>One of the nation's foremost experts in outdoor learning designs</td>
<td>Advised all SOILabs on planning and design for SOIL, as well as advises around the country.</td>
</tr>
<tr>
<td>STEM Director</td>
<td>Dan Hoffman, PhD</td>
<td>Pioneer in OH STEM education and active in STEM learning transformation across OH.</td>
<td>Led early Reynoldsburg district interest-based academies and K12 STEM pathway innovation efforts; Founded OH Center for Essential School Reform</td>
</tr>
<tr>
<td>Prototyping Lab</td>
<td>Educational Prototyping Field Station</td>
<td>Provides TPBL Experiential Learning for SOILab teachers and students</td>
<td>Prototypes programs that immerse students and teachers in TPBL environmental learning</td>
</tr>
<tr>
<td>Teachers and Students</td>
<td>SOILabs Cohort II: 6 schools; 4 high schools and 2 middle schools. These new SOILabs will replicate the model used in SOIL to plan, design and construct a SOILab at their school. Teachers and students from these schools will participate in programs at Kelleys Island, and teachers will participate in professional development. After completion of their labs they will replicate the process of taking on partners and buddies. Lancaster HS, Fairfield Union HS, Walnut Township HS, and Federal Hocking HS represent an expansion of SOILabs into rural southeast OH.</td>
<td>They are committed to expanding STEM learning in their districts and pursuing innovative applied learning for their students</td>
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### Cohort II SOIL

- **SOILabs Cohort II:** 6 schools; 4 high schools and 2 middle schools. These new SOILabs will replicate the model used in SOIL to plan, design and construct a SOILab at their school. Teachers and students from these schools will participate in programs at Kelleys Island, and teachers will participate in professional development. After completion of their labs they will replicate the process of taking on partners and buddies. Lancaster HS, Fairfield Union HS, Walnut Township HS, and Federal Hocking HS represent an expansion of SOILabs into rural southeast OH. They are committed to expanding STEM learning in their districts and pursuing innovative applied learning for their students.

- **No prior experience with SOIL**
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<tr>
<th>Name</th>
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<th>Qualifications</th>
<th>Synergistic Experience</th>
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<tbody>
<tr>
<td>Kat Deaner</td>
<td>STEM Innovator, PAST Foundation Teacher</td>
<td>GROWING SOIL Teacher Professional Development Coordinator</td>
<td>Masters in Education, The Ohio State University in Horticulture and Ag Education Qualifications: Facilitates professional development and teaches online courses in TPBL Instructional strategies.</td>
<td>Synergistic Experience: Facilitates teacher professional development for SOIL &amp; has directed outdoor innovation lab bridge programs.</td>
</tr>
<tr>
<td>Elliot Mork</td>
<td>STEM Innovator, PAST Foundation Construction Coordinator</td>
<td>GROWING SOILab Construction Coordinator 1. Facilitates the construction planning and implementation of SOILabs 2. Liaisons with Content Specialists</td>
<td>B.S. Georgia Tech University, in Aerospace Engineering Qualifications: Facilitates professional development &amp; coordinates Design Challenges</td>
<td>Synergistic Experience: Directs Bridge programs in robotics and engineering</td>
</tr>
</tbody>
</table>