PAST InnovationLab
access through education

Growing SOIL

Quarterly Report

April 30th, 2015

THE PAST FOUNDATION

Growing STEM Outdoor Innovation Lab (SOIL)
April 30th, 2015 Quarterly Report
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GROWING SOIL 3rd Quarter Report

Grant Overview

Growing SOIL scaled the innovative blend of STEM curriculum development, teacher professional development, and student field experiences alongside the strategic development of STEM Outdoor Innovation Labs (SOIL) by growing the shared use of resources and curriculum.

Building from the existing 9 SOILabs to 15 SOILabs Growing SOIL will:

1. Expand and elevate the reach of SOIL to K16
2. Engage community and industry partners
3. Increase the number of Transdisciplinary Problem-Based curricula modules (TPBL) as well as provide teachers with open access to the these resources, and
4. Utilize existing resources developed in Straight A Fund; Round I by partnering with other programs like Mobile Fab Labs

Cohort 2 leadership teams planning SOILabs

Update Since January

Planning

Cohort 2 spent the early months of 2015 planning and learning how to design SOILabs that resonate with the needs of their individual schools. Cohort 2 met February 20th and met with Herb Broda and the Growing SOIL project team. Cohort 2 hosted site visits in fall 2014 and had the opportunity to share an orientation well before the actual planning began. By March 20th and 21st, Cohort 2 teams were ready to present their SOILab plans and budgets.

As the quarter closes Cohort I has begun the expansion of their SOILabs and recruitment of partners both from the community and surrounding schools and out of school programs. Cohort 2 is transitioning to the construction phase of the project. Both cohorts are continuing to build TPBL modules now that all but two schools have completed P3 training.

The following synopsis outlines Growing SOIL activities across Quarter 3 (1/15 thru 4/15/2015)

General Project Management

3rd Quarter Synopsis of Events

Event	Date & Time	Location	Major Goals	Additional Notes
COHORT I				
Virtual Brainstorm	2/23/ 2015	Online Meeting	• Planning and budget review	Beth Witte
Virtual Brainstorm	3/23/ 2015	Online Meeting	• Discuss implementation of TPBL modules • Shared lessons learned	Beth Witte
COHORT 2				
Planning Meeting	2/20/ 2015	Rushville Middle School, Lancaster	• Gathering Resources & Project Management • Revisiting Planning Guide • Field School Discussions • Outdoor Activity • Stumbling Blocks in SOILab designs	Beth Witte Ketal Patel Herb Broda Matt Broda Darin Hadinger
Planning Meeting	2/21/ 2015		• Field School discussion • Designing TPBL modules • Creating Final Presenations • Community Partners	
Virtual Brainstorm	2/23/ 2015	Online Meeting	• Discuss plans for construction of SOILab and budgeting	Beth Witte
Planning Meeting	3/20/ 2015	Fairfield ESC, Lancaster	• Outdoor experiences • TPBL Module review • Challenges • Budget & Ordering	Beth Witte Ketal Patel Herb Broda Matt Broda Darin Hadinger Jim Dvorsky
Presentations	3/21/ 2015	Fairfield ESC, Lancaster	• Presentations of Plans and Budgets	Beth Witte
Virtual Brainstorm	3/23/ 2015	Online Meeting	• Discuss implementation of TPBL modules • Shared lessons learned	Beth Witte

All SOILab teams continue to post on Basecamp and attend the scheduled Virtual Brainstorms (Appendix) to report progress, seek guidance, and discuss constraints so that the entire group can help brainstorm solutions. Basecamp has provided an invaluable tool to both cohorts and enables the project team, the ESC project managers, and ODE access to what it happening in real time.

Starling Elementary students buddy up with Middle School students to ready SOILab for

A single budget revision has been requested. The request entails a clarification of disbursements for helping Cohort I teams reach out and generate interest from "buddy programs". This revision does not in any way change the approved budget it just clarifies the scope and expanded use of the amount received by Cohort I schools.

Finally, a complaint was lodged against *Growing SOIL* by Kelleys Island School District. PAST supported Fairfield ESC by providing copies of all requested documentation chronicling the revisions requested by ODE and communication between PAST and all participating schools, particularly Kelleys Island over the last six months.

Starling Middle School students and teachers work side by side to ready the built up beds for planting

Implementation of TPBL modules over the course of the 3rd Quarter

Cohort I

Over the winter months of 3rd Quarter Cohort I schools continued to explore expansion, partnerships and buddies. Baldwin Junior High School, Starling Middle School, Metro Middle School, and National Inventors Hall of Fame Middle School worked through planning and projects with the students.

- Baldwin Junior High Student explored the properties of soil in preparation for their gardens in the spring.
- Metro Middle School students sought out a partnership with Ohio State University horticulture students in the design and build of a vertical garden and watering system that draws nutrients from fish tank water.
- National Inventors Hall of Fame Middle School partnered with Summit County Health Department in getting and setting up an Air Quality Monitoring Station in

their SOILab, they constructed a whirligig sculpture, and created math modules around early blooming tulips

- Starling Middle School explored life and water cycles in preparation for spring planting outdoor activities.

Baldwin Junior High students explore the properties of soil preparing to get topsoil ready for their SOILab

National Inventors Hall of Fame Middle School take math outside into their

COHORT I

Name	Content Area	Reported Implmentation of Modules	Participation in Virtual Brainstorms
Baldwin Junior High School			
Chelle Watts	Administration		
Melissa Dunagen	Science	♦	♦
Richard Batts		♦	♦
Biomed STEM Academy			
Stephanie Lammlein	Administration		
Ryan Willard	9-12 Science		♦
Matt MacKeown	9-12 Science		♦
eSTEM High School			
Scott Bennet	Administration		
Madeline Schultz	Science		♦
Michelle Jago	English		♦
Metro Early College Middle and High Schools			
Meka Pace	Administration		
Andrew Bruening	Science	♦	♦
Jordan Walker	Math	♦	♦
Annie DeWitt	Science	♦	♦
Kris Stevens		♦	♦
National Inventors Hall of Fame Middle School			
Amanda Morgan	Administration		
Christine Justiss	Science	♦	♦
Sam Crews	Science	♦	♦
Starling Middle School			
Bill Doermann	Administration		
Andrew Bloom	Science	♦	
Anita Cornwell		♦	
West High School			
Lucas Czech	Administration		
Megan Hinz	Science		♦
Felix Catheline			♦
Westmoor Middle School			
Paul Bailey	Administration		
Sue Robins	Special Education		

COHORT 2

Name	Content Area	Planning & Presentation	Participation in Virtual Brainstorms
Fairfield Union			
Elizabeth Henwood	Administration MS	♦	♦
Matt Destadio	Teacher HS	♦	♦
John Markwood	Teacher MS	♦	♦
Lisa Ruff	Teacher ES	♦	♦
Rachel Thomas	Teacher MS	♦	♦
Judd Baker	Teacher HS	♦	♦
Federal Hocking			
Cliff Bonner	Administration	♦	
Keith Macartney		♦	
Doug Brooks		♦	
Sarah Russell		♦	
John Wryst		♦	
Julia Olson		♦	
Eric Anderson		♦	
Mat Roberts		♦	
Lancaster			
Nathan Conrad	Administration	♦	
Brian Griffin	Teacher	♦	
Shannon Fish	Teacher	♦	
Mont Goss	Teacher	♦	
Chad Rice	Administration	♦	
Walnut Township			
Jeff Stought	Administration	♦	♦
Jenny Spnseller	Teacher	♦	♦
Steve Harris	Teacher	♦	♦
Caitlin Mclurg	Teacher	♦	♦

Cohort 2

In a repeat of last winter Cohort 2 got down to the business of planning and budgeting for their SOILabs. They had a meeting per month beginning in early January. During the February 20-21 workshop Herb and Matt Broda along with Darin Hadinger walked the team members through the planning process providing examples and guidance from lessons learned. By having collected all the site maps and informational photos during fall site visits, Cohort 2 was able to jump in and begin planning right away. One month later on March 20-21, Cohort II went over budgeting and the scope of the summer bridge programs for their students and teachers. On the final day of the workshop each team presented their plan and budget.

Without waiting for their SOILab to be fully engaged, Lancaster teachers jumped into outdoor learning this winter by tapping syrup trees around the school. Fairfield Union students and teachers tackled the renovation of their covered bridge.

Transition of Growing SOIL Planning to Construction

We are now in the third quarter of the Growing SOIL Project, **the build phase.** This is when it gets exciting and very busy as the SOILabs expand and/or take shape. Energy at the SOILabs is regenerating with the spring weather. The timeframe is rapid and dynamic. Everything must take place in a very short time. Experience with Cohort I in SOIL helped the project team modify some of our forms and create others. This will streamline and facilitate the oversight and mentoring that must take place. PAST consultants, Herb Broda, Jim Dvorsky, and Darin Hadinger will coordinate this phase of the project. Their expertise and familiarity with the teams having done one site visit already in the fall has helped enormously.

Their focus is to provide expertise to all of the 15 sites in the new or continued construction of SOILabs, as well offer technical assistance throughout the construction process. The SOILab Facilitator, Jim Dvorsky, is specifically tasked with helping teams in their supply ordering process for construction. Jim will help review orders and then submit them for ordering. The Task Sheets for the coordinator and facilitator are included in this report.

The reporting tools, for consultants, is attached in the following section. The documentation of construction and expansion is critical to the required reporting for the grant and continuous reflection.

Next Steps for the Growing SOIL Charrettes

Each phase of the Growing SOIL includes SITE VISITS for Cohort 1 and 2. Site visits include all schools, providing additional help or assistance for SOILab construction and expansion. The Growing SOIL project team is tentatively planning visit times in the middle of May of 2015. A draft schedule is listed below to showcase possible dates

SOILab Grant Facilitator

- **Communicate** to all school teams to help with resources and project planning of the build phase. Please record in a log and email to Sheli and Ketal. (Send reports to Sheli by April 3, April 17, May 1, May 15, May 29, June 12, June 26, July 10, July 24, August 7, August 21, September 4, September 18.)

- **Schedule** site visits for April and May. Work with Jim and Ketal to coordinate these for both Cohorts. Sites that need support are listed on the log by need and priority.

-**Project Plan** with each team in Cohort 2 (Fairfield Union, Federal Hocking, Lancaster, Millersport) to help them timeline their project out and offer technical assistance to support them.

- **Project Plan** with Cohort 1 & 2 to help them manage usage of SOILabs and their work to increase usage over time. Suggested template is attached. SOILabs can use this template or create one of their own with this information included.

-**Post** messages on Basecamp for Cohort 1 & Cohort 2 re: resources they can use help with their build, and any other support they may need.

-**Document** the *support* being offered, *successes*, and *challenges* for each team to help them see process and progress of the SOILabs. Moving forward, please cc Sheli and Ketal on documentation and communication emails as well.

-**Gather** photo and program documentation for Cohort 1 (from school visit), post on Basecamp

-**Gather** photo and program documentation for Cohort 2 (from school visit), post on Basecamp

-**Email** Sheli and Ketal a list of activities monthly to document progress on grant goals. ***Please send by 15th of the month.***

SOILab Coordinator

-**Communicate** Bi-weekly to all school teams. Please record in a log and email to Sheli and Ketal. (Send reports to Sheli by April 3, April 17, May 1, May 15, May 29, June 12, June 26, July 10, July 24, August 7, August 21, September 4, September 18.)

-**Use template** for the log of status updates with each team and the work moving forward in the build phase.

-**Post messages** on basecamp for Cohort 1 & Cohort 2 re: budgets and ordering, June 6 celebration, virtual brainstorms, etc.

-**Review submitted construction orders** and make sure ordering and budgets are approved and within appropriate limits for each site. Each file should be dated when sent to Pam for ordering. ***Please check on the following prior to sending to Pam: That the school has included Shipping costs, That the school and/or you are cc'ing the Principal that they are aware of what is being ordered on behalf of the school, if applicable you have crossed checked any possible alternative vendors that might save a team/school some money.*** Moving forward, please cc Sheli and Ketal on budget emails as well.

-**Indicate** if order draws from construction SOILab fund, or if it draws from Community Partner fund ($1000 per SOILab).

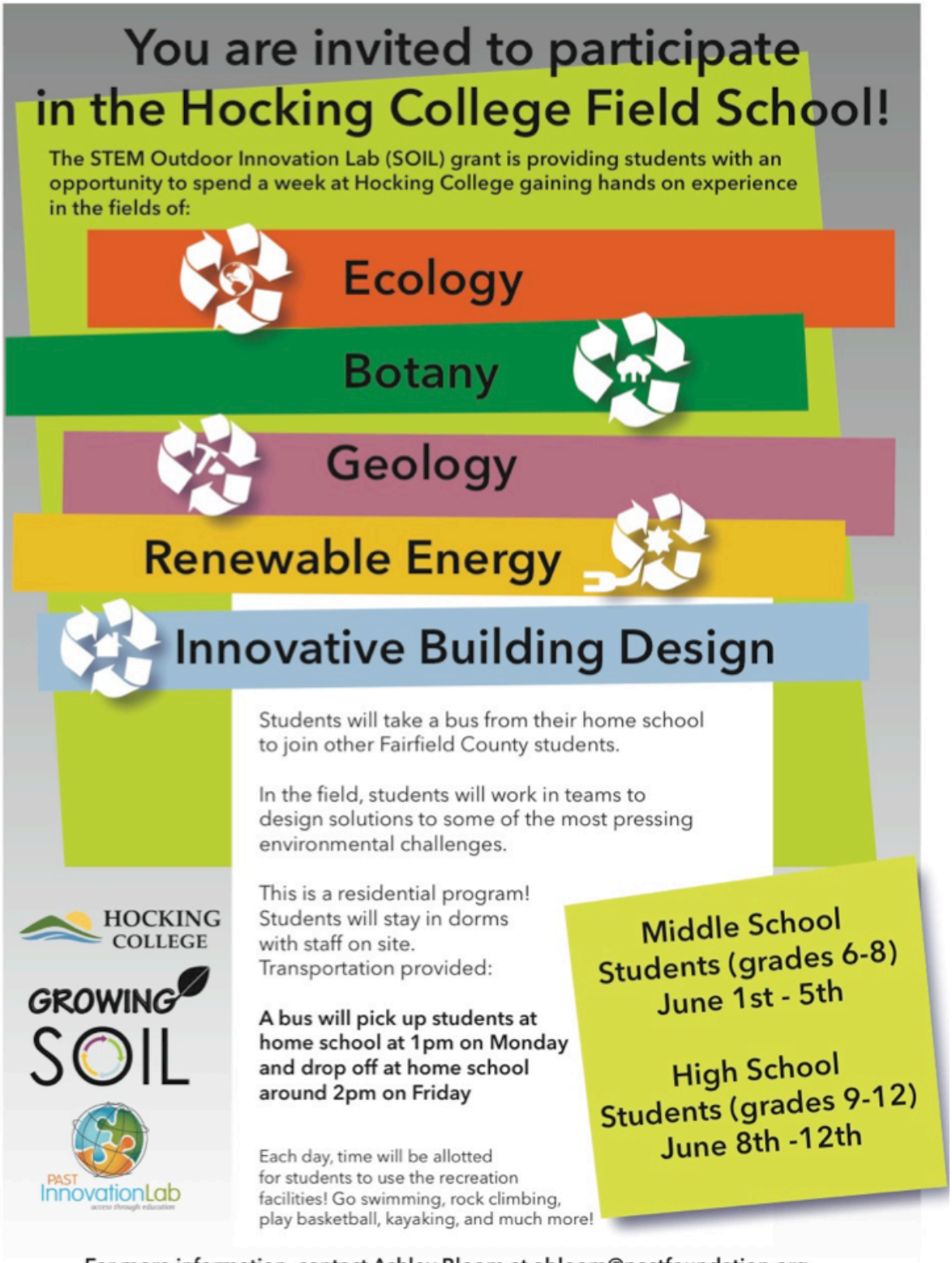
-**Zoom and/or phone** Pam to check-in with timely ordering. Please ask schools to put a quick item description in the file for their items, (because sometimes links can be broken, and/or it will help Pam to make sure she orders the correct item for the school) ***Remember this has to happen quickly and all funds must be encumbered by June 20th to meet the June 30th deadline.***

-Once Pam receives the excel file, she will create another column that states the actual cost anything that is within their budget, if any revisions need to be made, Pam will date and send that back to Jim for teams to modify as needed.

-Schedule site visits for April and May. Work with Darrin and Ketal to coordinate these for both Cohorts.

-**Gather** photo and program documentation for Cohort 1 & 2 (with school visit or emailed photos), post on Basecamp

-**Email** Sheli and Ketal a list of activities monthly to document progress on grant goals. Please send by 15th of the month.



For more information, contact Ashley Bloom at abloom@pastfoundation.org

Spring site visits are being scheduled. The tentative schedule is listed below. There will be a final site visit scheduled for fall when the programs are in implementation.

Tentative Reservation Schedule for Spring Charrette Visits

Date	Time Slot	District Name	Contact Email
Monday May 11th, 2015	9:00-11:00		
Monday May 11th, 2015	1:00-3:00		
Tuesday May 12th, 2015	9:00-11:00		
Tuesday May 12th, 2015	1:00-3:00		
Wednesday May 13th, 2015	9:00-11:00		
Wednesday May 13th, 2015	1:00-3:00		
Thursday May 14th, 2015	9:00-11:00		
Thursday May 14th, 2015	1:00-3:00		
Friday May 15th, 2015	9:00-11:00		
Friday May 15th, 2015	1:00-3:00		

Transition of Growing SOIL Construction to Summer Field Experience

The Growing SOIL Project team continues to plan with Hocking College and the Fairfield ESC to design meaningful summer immersion experiences for Cohort 2 Middle School and High School students and teachers. Hocking College is the second Prototyping Environmental Field Station for SOIL. By developing Hocking College as a field lab, schools in the southern half of the state have access to rich content and experts that can provide important partnerships in the future. This spring the program will explore Ecology, Botany, Geology, Renewable Energy, and Innovative Building Design. Each and every one of the topics directly relates to potential projects in the individual SOILabs.

The planned programs will once again immerse students and teachers in hands-on learning and ways to implement and think of their own SOILabs. The programs will run for two weeks in June, 1-5 for Middle School students and 8-12 for high school students. Currently, the 6 schools of Cohort II are reaching out to parents and teachers to recruit for the Hocking College Bridge Programs in June. Ashley Bloom will coordinate with each of the Cohort II schools, providing packets of Bridge Program information.

The Project team is also planning field programs for Cohort I. These programs will run in June after the Cohort I experiences. *Fish & Fowl* along with *Astronomy* are intended to expand the field experience of Cohort I students who attended SOIL Bridge Programs last year at Kelleys Island Prototyping Field Station.

To date, a majority of the field program directors have been hired. The following

Team Member	Assignment	Program
Beth Witte	Bridge Program Coordinator	Oversight
Calvin Mires	Director of Bridge Programs	Oversight
Ashley Bloom	Bridge Program Coordinator	Hocking College
Andrew Bloom	Program Director	Ecology
Darin Hadinger	Program Director	Energy/Construction
Cari Ann Ritzenthaler	Program Director	Ecology
Zac Patterson	staff	
Caitlin Davis	staff	
Nakita Washington	staff	
Erica Noll	staff	
Katie Sedin	staff	

4th Quarter Objectives

The following events are planned for the fourth quarter of *Growing SOIL*.

1. Finalization of all TPBL Modules for Cohorts I and II
2. Spring Charrette Site visits
3. Full construction of all SOILabs
4. Presentation of SOILab Projects in Public Forum on June 6th at Fairfield ESC
5. Analysis of Knowledge Capture collected data.
6. Scheduling Fall Charrette Site visits

Professional Development
Appendix
Growing SOIL

Agendas

- Agendas
- Sign In Sheets
- Growing SOIL Participant Attendance Information

Presentations

- Cohort 2 March 21st, 2015 Presentations Matrix
- Fairfield Union LSD Presentation
- Lancaster High School Presentation
- Walnut Township (Millersport) LSD Presentation
- Federal Hocking LSD Presentation

Completed Modules

- Growing SOIL Completed Modules Matrix
- Baldwin Road Junior High Completed Module
- Bio Med Completed Module
- eSTEM High School Completed Module
- Metro Early College High School Completed Module
- NIHF Completed Module
- Starling K-8 Completed Module
- West High School Completed Module
- Westmoor Middle School Completed Module

Materials Developed for Growing SOIL Program

- Growing SOIL Planning Toolkit
- SOIL Implementation Site Visit Form
- Site Visit Log Cohort 1 & 2 Sheet
- SOIL Lab Usage Sheet
- Growing SOIL Check Off Sheet for Ordering
- Communication Log for Cohort 1 & 2 SOILabs

SOIL Agenda - Cohort 2

Location: Rushville Middle School/Fairfield Union Local School District
6409 Cincinnati-Zanesville Road NE Lancaster, OH 43130
P: 740-536-7306

Friday, February 20th

TIME	TOPIC	NOTES
9:00 - 9:30 AM	**Introduction: Welcome & Check-in** (Beth, 20min) • **Game** (Matthew, 10 min.)	
9:30 - 10:15 AM	• **Gathering Resources, Project Management, Success Center** (Darin, 45mins)	
10:15 - 11:30 AM	• **Revisit Planning Guide, Workshop SOILab plans** (Herb & Matthew, 1hr, 15mins)	
11:30 - 12:15 PM	• **Lunch** (45mins)	
12:15 – 12:30PM	• **Hocking College Field School Discussion** (Beth, 15mins)	
12:30 – 1:30PM	• **Workshop SOILab plans** (Herb and Matthew, 1hr)	
1:30-2:00PM	• **Preparing for Final Presentation & Module Development** (30mins, Beth and Ketal)	

TPBL Quarterly Planning
Professional Development Agenda
At Fairfield County ESC
March 6th, 2015

9:00AM-9:15AM: Welcome and Introductions

9:15AM-10:15AM: Developing a Back map and designing problems→projects→products for your students.

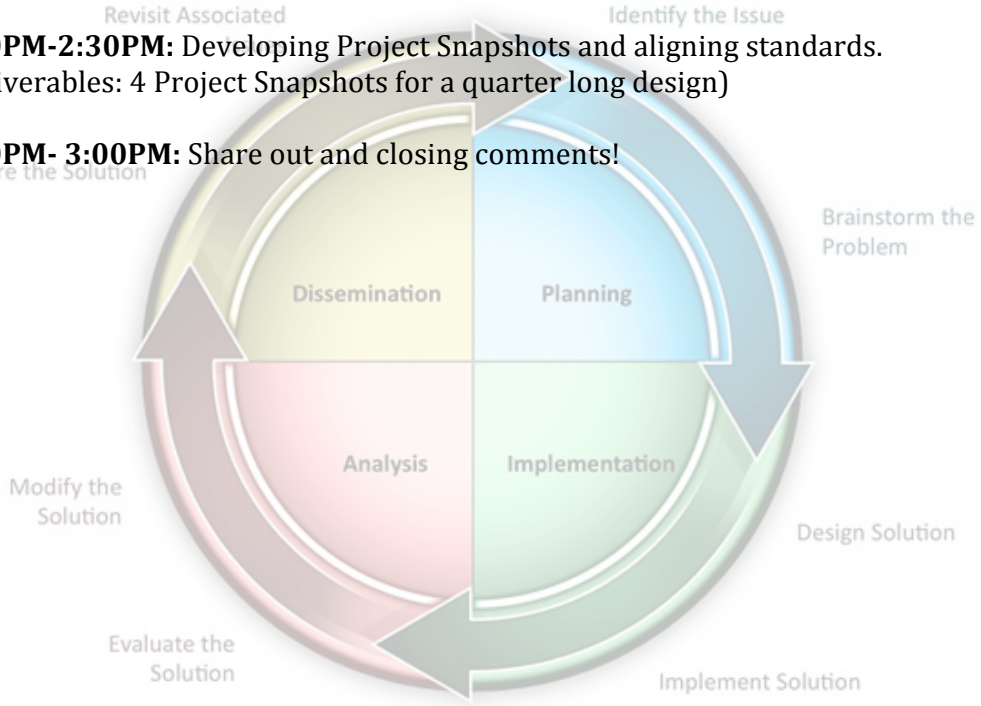
10:15AM-12:00PM: Design 2 week project plans and project management in the classroom. (Deliverables: 4 Two-week Planners for a quarter long design)

12:00PM-12:15PM: Sharing your big ideas and back map work.

12:15PM-1:00PM: Lunch on your own

1:00PM-2:30PM: Developing Project Snapshots and aligning standards. (Deliverables: 4 Project Snapshots for a quarter long design)

2:30PM- 3:00PM: Share out and closing comments!



FairfieldCounty Educational Service Center
STRAIGHT A FUND
FAST FORWARD Fairfield Advancing Students & Teachers Forward

GROWING SOIL | STEM OUTDOOR INNOVATION LAB | PAST InnovationLab | Fairfield County Educational Service Center | HOCKING COLLEGE

SOIL Agenda - Cohort 2

Friday, March 20th

Location: Rushville Middle School/Fairfield Union Local School District

TIME	TOPIC	NOTES
9:00 - 9:30 AM	**Introduction: Welcome & Check-in (Beth)**	
9:30 – 11:00 AM	**Outdoor Experience (All)**	
11:00 – 12:00 PM	**Curriculum Modules (Ketal)**	
12:00- 12:30 PM	**Lunch**	
12:30 – 1:15 PM	**Challenges (Herb & Matthew)**	
1:15 – 1:45 PM	**Budget/Ordering (Jim)**	
1:45 – 2:00 PM	**Wrap Up**	

Saturday, March 21st

Location: Fairfield Educational Service Center
955 Liberty Drive, Lancaster OH 43134

TIME	TOPIC	NOTES
9:00 - 9:15 AM	**Welcome (Beth)**	
9:15 - 10:30 AM	**Community Partner Discussion (Matthew)**	
10:30- 11:00 AM	**Hocking College Partnership/Field School (Beth & Darin)**	
11:00 – 12:00PM	**Presentation Prep/Lunch**	
12:00– 2:00PM	**Final Presentations** • **Order: Fairfield Union, Walnut Township, Federal Hocking, Lancaster**	

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Date: Friday, February 20th, 2015

District: Federal Hocking

Name	Title	Email	Signature
Keith Macartney	Teacher	KMacartney@fhlancers.com	
Mathew Roberts	AmeriCorps member	mat.americorps@gmail.com	

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Growing SOIL

Date: Friday, February 20th, 2015

District: Walnut Township

Name	Title	Email	Signature
Caitlin McClurg	Teacher	CMcclurg@walnuttsd.org	
Megan Terry	Teacher	mterry1@walnuttsd.org	
Jeff Straught	Principal	jstraught@walnuttsd.org	
J. B. Dick	Curriculum Consultant	jdicke@fairfield.esc.org	
Steve Harris	Teacher	sharris@walnuttsd.org	
Jenny Sponseller	Teacher	jsponseller@walnuttsd.org	

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Growing SOIL

Date: Friday, February 20th, 2015

District: Lancaster

Name	Title	Email	Signature
Shannon Fish	Art Teacher	s_fish@lancaster.k12.oh.us	
BRIAN J GRIFFIN	SCIENCE TEACHER	b_griffin@lancaster.k12.oh.us	
		—	

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Growing SOIL

Date: Friday, February 20th, 2015

District: Fairfield Union

Name	Title	Email	Signature
Eydie Schilling	Curriculum	eydieschilling@fairfieldunion.org	Eydie Schilling
Eric Vivian	teacher	ericvivian@fairfieldunion.org	
Lisa Ruff	teacher	lisaruff@fairfieldunion.org	Lisa Ruff
Liz Henwood	Principal	lizhenwood@fairfieldunion.org	Liz Henwood
Jon Markwood	Teacher	jonmarkwood@fairfieldunion.org	
Rachel Thomas	teacher	rachelthomas@fairfieldunion.org	

FAST Quarterly PD - March 6th, 2015

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STEM Professional Development Sign-In Sheet

Date: 3/6/2015 **School:** Liberty Union THURSTON

Name	Content Area	Grade	Email
Cathi Brunty	All	1	bruntyc@libertyunion.org
Audrey Ross	All	1	rossa@libertyunion.org

FAST Quarterly PD - March 6th, 2015

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STEM Professional Development Sign-In Sheet

Date: 3/6/205 School: LANCASTER

Name	Content Area	Grade	Email
BRIAN J GRIFFIN	ENVIRON. SCIENCE	11	b_griffin@lancaster.k12.oh.us
MONT E. GOSS	ENVIRONMENT SCIENCE	11	m_goss@lancaster.k12.oh.us

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Growing SOIL Cohort 2 Workshop

Date: Friday, March 20th, 2015

District: Fairfield Union

Name	Title	Email	Signature
Jon Markwood			
Liz Henwood			
Judd Baker			
Rachel Thomas			
Lisa Raff			
Eric Vivian			
Eydie Schulz			

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Growing SOIL Cohort 2 Workshop

Date: Friday, March 20th, 2015

District: Federal Hocking

Name	Title	Email	Signature
Keith Macartney	Teacher	kmacartney@fhlancers.com	
Eric Anderson	Teacher	eanderson@fhlancers.com	
Mat Roberts	AmeriCorps member	mat.americorps@gmail.com	

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Growing SOIL Cohort 2 Workshop

Date: Friday, March 20th, 2015

District: Lancaster

Name	Title	Email	Signature
BRIAN J GRIFFIN	ENVIRONMENTAL SCIENCE TEACHER	b_griffin@lancaster.k12.oh.us	
Chad Rice	Secondary Curr. Coordinator	c_rice@ " " "	
MONT GOSS	BIOLOGY/ENVIRONMENTAL SCIENCE	m_goss@lancaster.k12.oh.us	
Shannon Fish	ART teacher	s_fish@lancaster...	

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Growing SOIL Cohort 2 Workshop

Date: Friday, March 20th, 2015

District: Walnut Township

Name	Title	Email	Signature
Megan Terry	Teacher	mterry@walnuttsd.org	
Caitlin McClurg	Teacher	cmcclurg@walnuttsd.org	
Jenny Sponseller	Teacher	jsponseller@walnuttsd.org	
J. B. Dick	Curriculum Consultant	jdick@fairfieldesc.org	
Steve Harris	Teacher	sharris@walnuttsd.org	

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Growing SOIL Cohort 2 Presentations

Date: Saturday, March 21st, 2015

District: Fairfield Union

Name	Title	Email	Signature
Jon Markwood			Jon Markwood
Lisa Ruff			Lisa Ruff
Liz Henwood			Liz Henwood
Eric Vivian			Eric Vivian
Judd Baker			Judd Baker
Eydie Schilling			Eydie Schilling
Rachel Thomas			Rachel Thomas

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Growing SOIL Cohort 2 Presentations

Date: Saturday, March 21st, 2015

District: Lancaster

Name	Title	Email	Signature
BRIAN J GRIFFIN	ENVIRONMENTAL SCIENCE TEACHER	b_griffin@lancaster.k12.oh.us	
Shannon Fish	ART teacher	s_fish@lancaster....	
MONT GOSS	BIOLOGY/ENVIRONMENTAL SCIENCE	m_goss@lancaster.k12.oh.us	

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Growing SOIL Cohort 2 Presentations

Date: Saturday, March 21st, 2015

District: Federal Hocking

Name	Title	Email	Signature
Mat Roberts	AmeriCorps member	mat.americorps@gmail.com	
Eric Anderson	Teacher	eanderson@fhlancers.com	Eric R. Anderson
Keith Macartney	Teacher	kmacartney@fhlancers.com	

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Growing SOIL Cohort 2 Presentations

Date: Saturday, March 21st, 2015

District: Walnut Township

Name	Title	Email	Signature
J. B. Dick	Curriculum Consultant	jdickefairfieldcsc.org	
Megan Terry	Teacher	mterry@walnuttsd.org	

Fairfield Union Local- Participant Attendance Information

Name	Title	Email	Orientation	Outdoor Innovation Lab Planning		Outdoor Lab & Fi	Outdoor Lab Presentation		Final Presen	P3	Hocking College
			10/1/14	1/9/15	1/10/15	2/20/15	3/20/15	3/21/15	6/6/15	Nov-14	
Mathew Destadio	Science 9-12	mattdestadio@fairfield-union.k1	x	/	/	/	/	/		x	
Eric Vivian	Science 9-12	ericvivian@fairfield-union.k12.oh	x	x	/	x	x	x		x	
Judd Baker	Industrial Technology 9-12	juddbaker@fairfield-union.k12.u	x	x	x	/	x	x		x	
Lisa Ruff	1st grade	lisaruff@fairfield-union.k12.oh.u	x	x	x	x	x	x		x	
Liz Henwood	Principal- Rushville	lizhenwood@fairfieldunion.org	x	/	x	x	x	x		x	
Rachel Thomas	8th Grade Science/7th grad	rachelthomas@fairfield-union.k1	x	x	x	x	x	x		x	
Jon Markwood	7th & 8th grade science	jonmarkwood@fairfield-union.k1	x	x	x	x	x	x		x	
Eydie Schilling	curriculum director	eydieschilling@fairfieldunion.org	/	/	/	x	x	x		x	
										8	

Name	Title	Email	Quarterly PD	Quarterly PD	Quarterly PD
			10/3/14	12/5/14	3/6/15
Mathew Destadio	Science 9-12	mattdestadio@fairfield-union.k1	/	/	/
Eric Vivian	Science 9-12	ericvivian@fairfield-union.k12.oh	/	/	/
Judd Baker	Industrial Technology 9-12	juddbaker@fairfield-union.k12.u	/	/	/
Lisa Ruff	1st grade	lisaruff@fairfield-union.k12.oh.u	/	/	/
Liz Henwood	Principal- Rushville	lizhenwood@fairfieldunion.org	/	/	/
Rachel Thomas	8th Grade Science/7th grad	rachelthomas@fairfield-union.k1	/	/	/
Jon Markwood	7th & 8th grade science	jonmarkwood@fairfield-union.k1	/	/	/
Eydie Schilling	curriculum director	eydieschilling@fairfieldunion.org	/	/	/

Lancaster City- Participant Attendance Information

Name	Title	Email	Orientation 10/1/14	Outdoor Innovation Lab Pl 1/9/15	1/10/15	Outdoor Lab 2/20/15	Outdoor Lab Presentation 3/20/15	3/21/15	Final Present 6/6/15	P3 Nov-14	Hocking College
Chad Rice	Sec. Curriculum Coord	c_rice@lanca	x	/	/	/	x	x		x	
Nathan Conrad	Assistant Principal- Hi	n_conrad@la	x	x	x	x	x	x		x	
Brian Griffin	Science Teacher	b_griffin@la	/	x	x	x	x	x		x	
Mont Goss	Science Teacher	m_goss@lan	/	x	x	/	x	x		x	
Shannon Fish	Art Teacher	s_fish@lanca	/	x	x	x	x	x		x	
										5	

Name	Title	Email	Quarterly PD 10/3/14	Quarterly PD 12/5/14	Quarterly PD 3/6/15
Chad Rice	Sec. Curriculum Coord	c_rice@lanca	/	/	/
Nathan Conrad	Assistant Principal- Hi	n_conrad@la	/	/	/
Brian Griffin	Science Teacher	b_griffin@la	/	/	x
Mont Goss	Science Teacher	m_goss@lan	/	x	x
Shannon Fish	Art Teacher	s_fish@lanca	/	/	/

Walnut Township- Participant Attendance Information

Name	Title	Email	Orientation 10/1/14	Outdoor Innovation Lab Pla 1/9/15	Outdoor Innovation Lab Pla 1/10/15	Outdoor Lab & 2/20/15	Outdoor Lab Presentation 3/20/15	Outdoor Lab Presentation 3/21/15	Final Presenta 6/6/15	P3 Nov-14	Hocking College
Steve Harris	Science- 10-12	sharris@walnuttsd.org	x	/	x	x	x	/		/	
Jeff Stought	Principal- Jr/Sr High S	jstought@walnuttsd.or	x	/	x	x	/	/		/	
Caitlin McClurg	Math 9-12	cmcclurg@walnuttsd.or	x	/	x	x	x	/		x	
Jenny Sponseller	7/8 Science	jsponseller@walnuttsd.	x	/	x	x	x	/		x	
J.B. Dick	k-12	jdick@fairfieldesc.org	x	x	x	x	x	x		/	
Megan Terry	MS Science	mterry@walnuttsd.org	/	/	/	x	x	x		/	

2

Name	Title	Email	Quarterly PD 10/3/14	Quarterly PD 12/5/14	Quarterly PD 3/6/15
Steve Harris	Science- 10-12	sharris@walnuttsd.org	/	/	/
Jeff Stought	Principal- Jr/Sr High S	jstought@walnuttsd.or	/	/	/
Caitlin McClurg	Math 9-12	cmcclurg@walnuttsd.or	/	/	/
Jenny Sponseller	7/8 Science	jsponseller@walnuttsd.	/	/	/
J.B. Dick	k-12	jdick@fairfieldesc.org	/	/	/
Megan Terry	MS Science	mterry@walnuttsd.org	/	/	/

Federal Hocking- Participant Attendance Information

Name	Title	Email	Orientation 10/1/14	Outdoor Innovation Lab Planni 1/9/15	1/10/15	Outdoor Lab & 2/20/15	Outdoor Lab Presentation 3/20/15	3/21/15	Final Presen 6/6/15	P3 Nov-14	P3 Jan-15	Hocking College
Mathew Roberts	7th-12th	mat.americorps@gmail.com	x	/	/	x	x	x		/	/	
Cliff Bonner	HS/MS Princi	cbonner@fedhock.com	x	/	/	/	/	/		/	/	
Keith MaCartney	Middle Schoo	kmacartney@fhlancers.com	/	x	x	x	x	x		/	x	
Eric Anderson	Teacher	eanderson@fhlancers.com	/	/	/	/	x	x		/	/	
										0	1	

Name	Title	Email	Quarterly PD 10/3/14	Quarterly PD 12/5/14	Quarterly PD 3/6/15
Mathew Roberts	7th-12th	mat.americorps@gmail.com	/	/	/
Cliff Bonner	HS/MS Princi	cbonner@fedhock.com	/	/	/
Keith MaCartney	Middle Schoo	kmacartney@fhlancers.com	/	/	/

GROWING SOIL | STEM OUTDOOR INNOVATION LAB | PAST InnovationLab | Fairfield County Educational Service Center | HOCKING COLLEGE

Growing SOIL
Cohort 2 March 21st, 2015 Presentations

District	Presentation Main Idea
Lancaster	Outdoor Classroom Planning and Implementation
Walnut Township- Millersport	Proposal for Shelter House and Retention Pond build
Federal Hocking	Land Lab Development
Fairfield Union School District	Land Lab and the Design Process

Fairfield Union

Growing SOIL Presentation

SOIL | STEM OUTDOOR INNOVATION LABS


Fairfield Union Design Process
• SOIL Design Team, with guidance from the PAST Foundation and Herb Broda, met to determine projects that could improve and expand our existing Land Lab.
• Once the initial list was created, community partners were recruited to provide input and garner additional support. Over a series of meetings, partners stepped forward to lead and fund the various projects.
• The Design Team worked with each building to gather more input on how teachers would use the improved Land Lab for engaging students in outdoor education.
• The Design Team then collected theses ideas and created a resource lists that met the budget requirements.
SOIL | STEM OUTDOOR INNOVATION LABS

Fairfield Union Design Process

- Areas identified for improvement:
  - Demolition of old shelter house and construction of a new structure at the entrance of the Land Lab
  - Revitalization of ponds on property
  - Redefinition of trails and construction of a new perimeter trail

SOIL | STEM OUTDOOR INNOVATION LABS


Fairfield Union Design Process
• Areas identified for improvement:
• Creation of outdoor learning carts with materials/equipment necessary to conduct lessons outside in all content areas
• Geocaching throughout site
• Trail cams throughout site that will be networked together to allow access across the district
• Construction of birdhouse, birdfeeders and bat houses
• Purchase of additional materials and equipment for forestry and maple syrup activities
• Additional seating/gathering spot options throughout property
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Proposed Budget

Trail Cams (Cameras, set-up, etc.)	2000.00
Geocaching Supplies	200.00
Maple Syrup/Forestry Supplies	2600.00
Cart (1 each @ BES/PES/RMS/FUHS)	1600.00
Cart Supplies (Buildings)	2500.00
Cart Supplies (Land Lab)	1500.00
Wagons (2)	160.00
Invasive Species	2600.00
Bird Houses, Bird Feeders, etc.	500.00
Flexible Camera & Microscope	500.00
Erosion Lab	500.00
Picnic Tables for Shelter house	1000.00
Total	$15,660.00

Community Partners

- Currently, the Fairfield Union SOIL Team is working in conjunction with our Land Lab Committee to organize and manage the various part of our improvement plans. The Committee, along with the SOIL Team meets once a month to discuss the progress of the plan and to identify needs and next steps.

- At this time there are approximately 20 members of the Committee including representatives from local businesses and organizations and individuals from the community who have a vested interest in the success of this plan.

- Our Community Partners have taken on the "construction" projects associated with our plan (shelter house, pond reconstruction, etc.) to allow us to focus our money on purchasing the equipment and supplies we need in order to effectively use our outdoor labs.

Community Partners

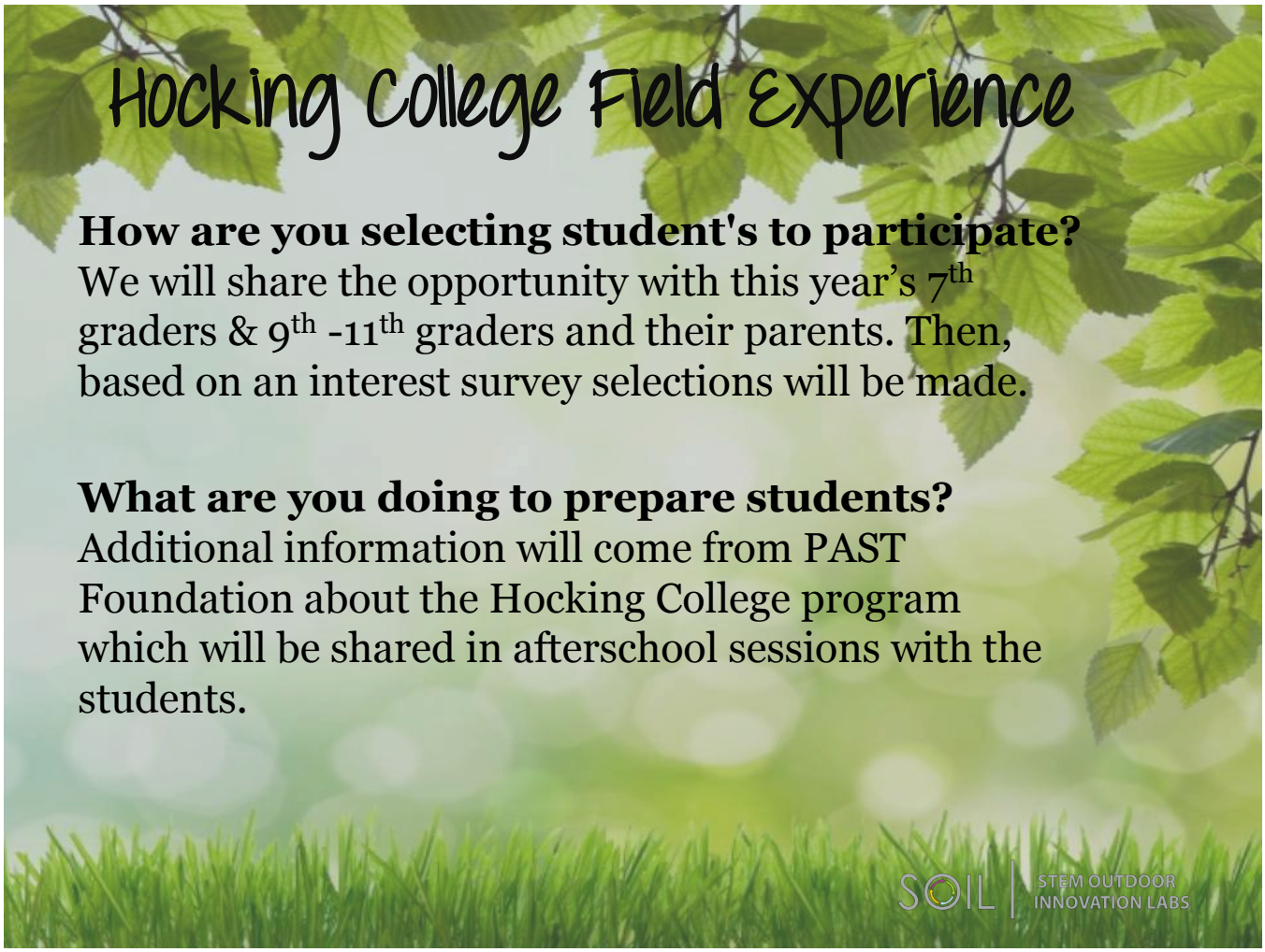
- In addition to the projects outlined in the original SOIL Team plan, the our Community Partners have determined the need to revitalize our historical covered bridge, which is part of our current Outdoor Learning Environment.

Budget for Community Projects

Construction of new Shelter House	10,000.00
Cleaning out of Ponds, Construction of docks, etc.	11,000.00
Renovation of historical Covered Bridge	11,000.00
Construction of new Perimeter Trails	1,000.00
Additional Costs (drainage, parking, etc.)	6,000.00
Total	$39,000.00

Funding for these projects will come from community fundraisers, leaving SOIL funds available for materials and equipment.


Proposed 25 by 48 shelter house
Baker covered bridge to be stabilized
Proposed wetland dock
Area modified to improve wetland habitat
Trees to be removed for dam long-term stability (TYP)
Pine plantation 1acre
Proposed pond dock
Pond to be dredged and cleaned
Pine plantation 2.6 acres
Old-field reversion 6.2 acres
Proposed access path
Northern hardwoods 3 acres
Northern hardwoods 3.6 acres
Northern hardwoods 6.2 acres
Existing trails to be cleared and improved
Older shelter house to be removed and modified as gather space at trail intersection


Hocking College Field Experience
How are you selecting student's to participate?
We will share the opportunity with this year's 7th graders & 9th -11th graders and their parents. Then, based on an interest survey selections will be made.
What are you doing to prepare students?
Additional information will come from PAST Foundation about the Hocking College program which will be shared in afterschool sessions with the students.
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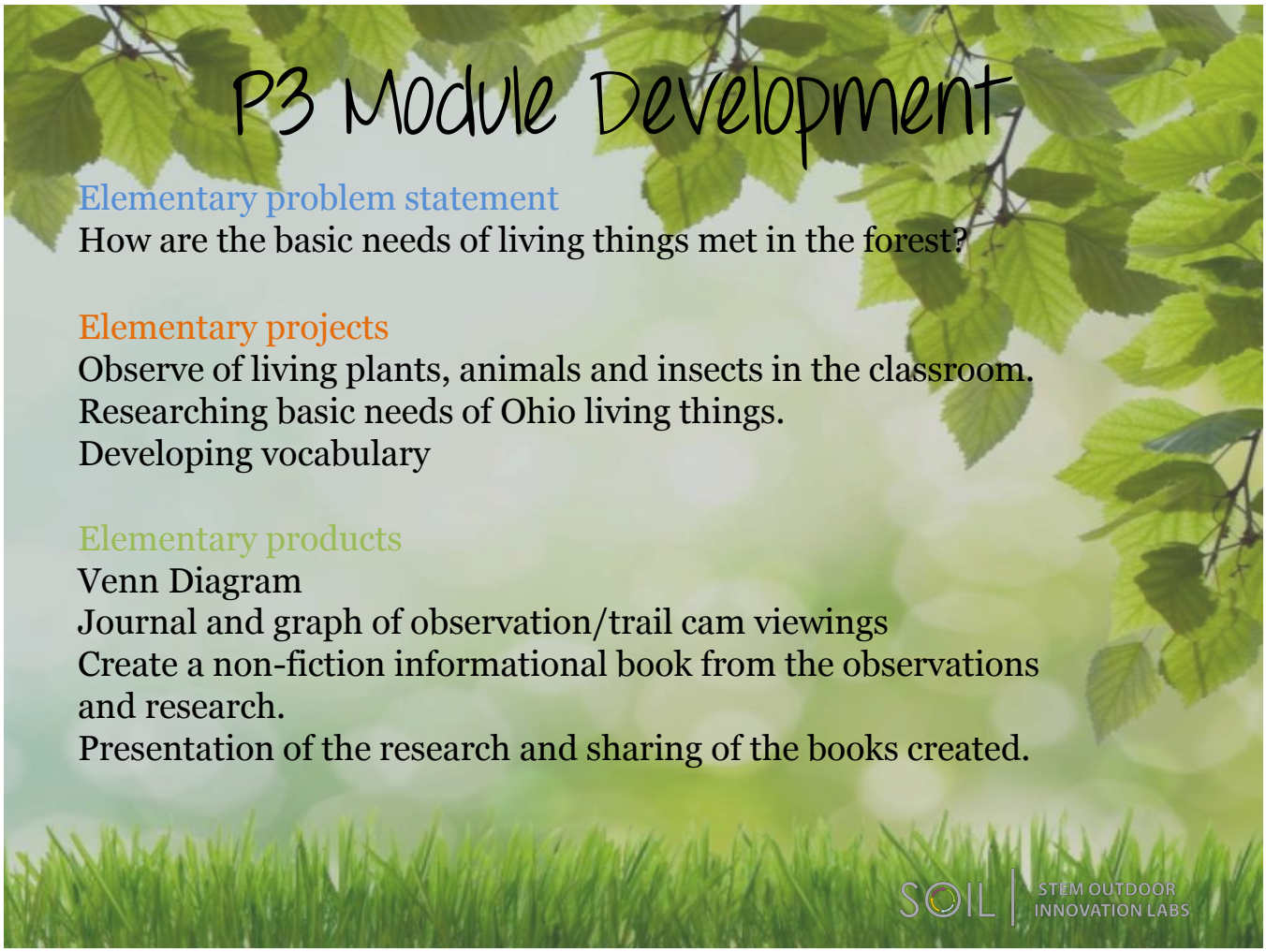
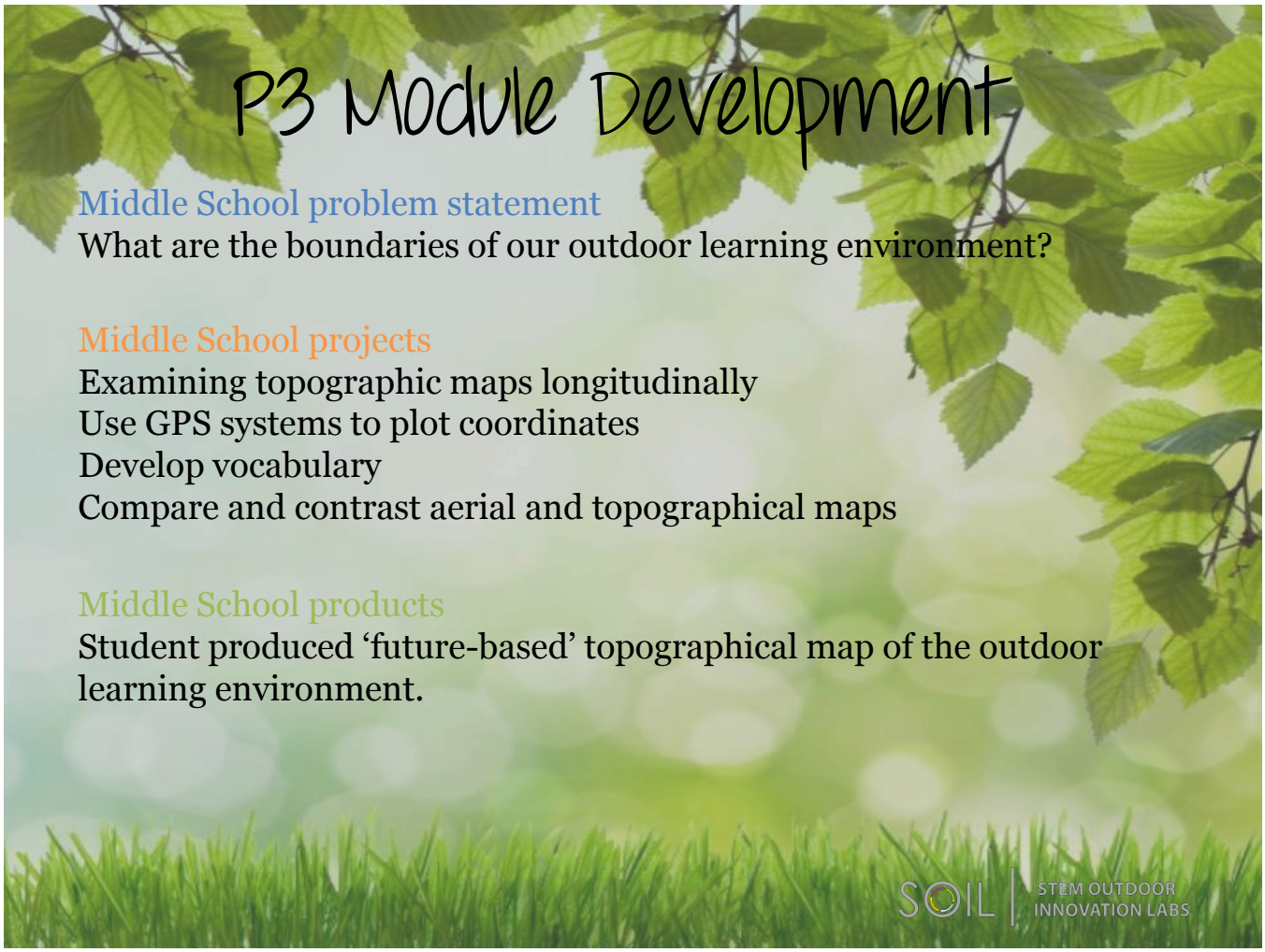

P3 Module Development
Elementary problem statement
How are the basic needs of living things met in the forest?
Elementary projects
Observe of living plants, animals and insects in the classroom.
Researching basic needs of Ohio living things.
Developing vocabulary
Elementary products
Venn Diagram
Journal and graph of observation/trail cam viewings
Create a non-fiction informational book from the observations and research.
Presentation of the research and sharing of the books created.
SOIL | STEM OUTDOOR INNOVATION LABS


P3 Module Development
Middle School problem statement
What are the boundaries of our outdoor learning environment?
Middle School projects
Examining topographic maps longitudinally
Use GPS systems to plot coordinates
Develop vocabulary
Compare and contrast aerial and topographical maps
Middle School products
Student produced 'future-based' topographical map of the outdoor learning environment.
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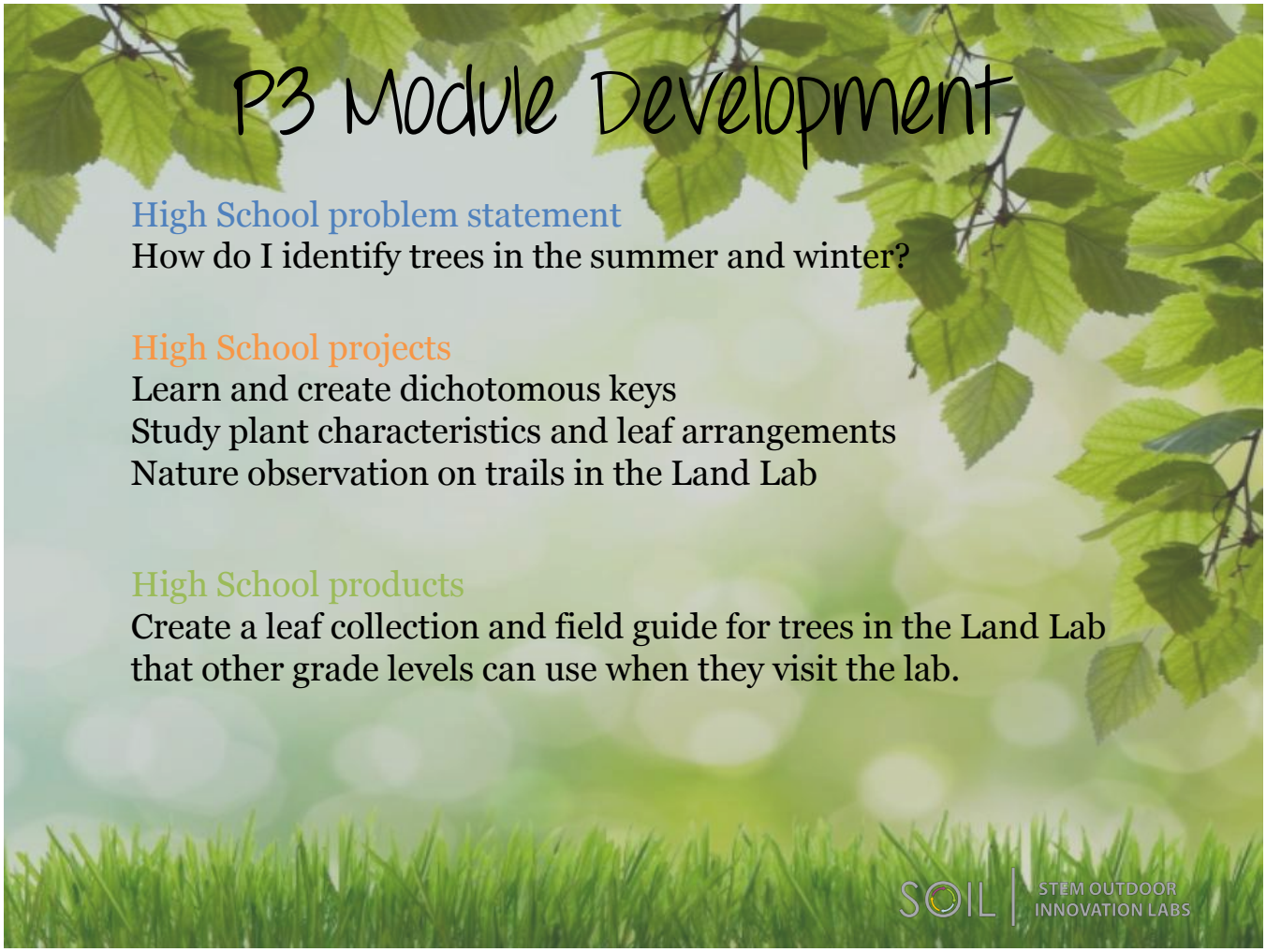
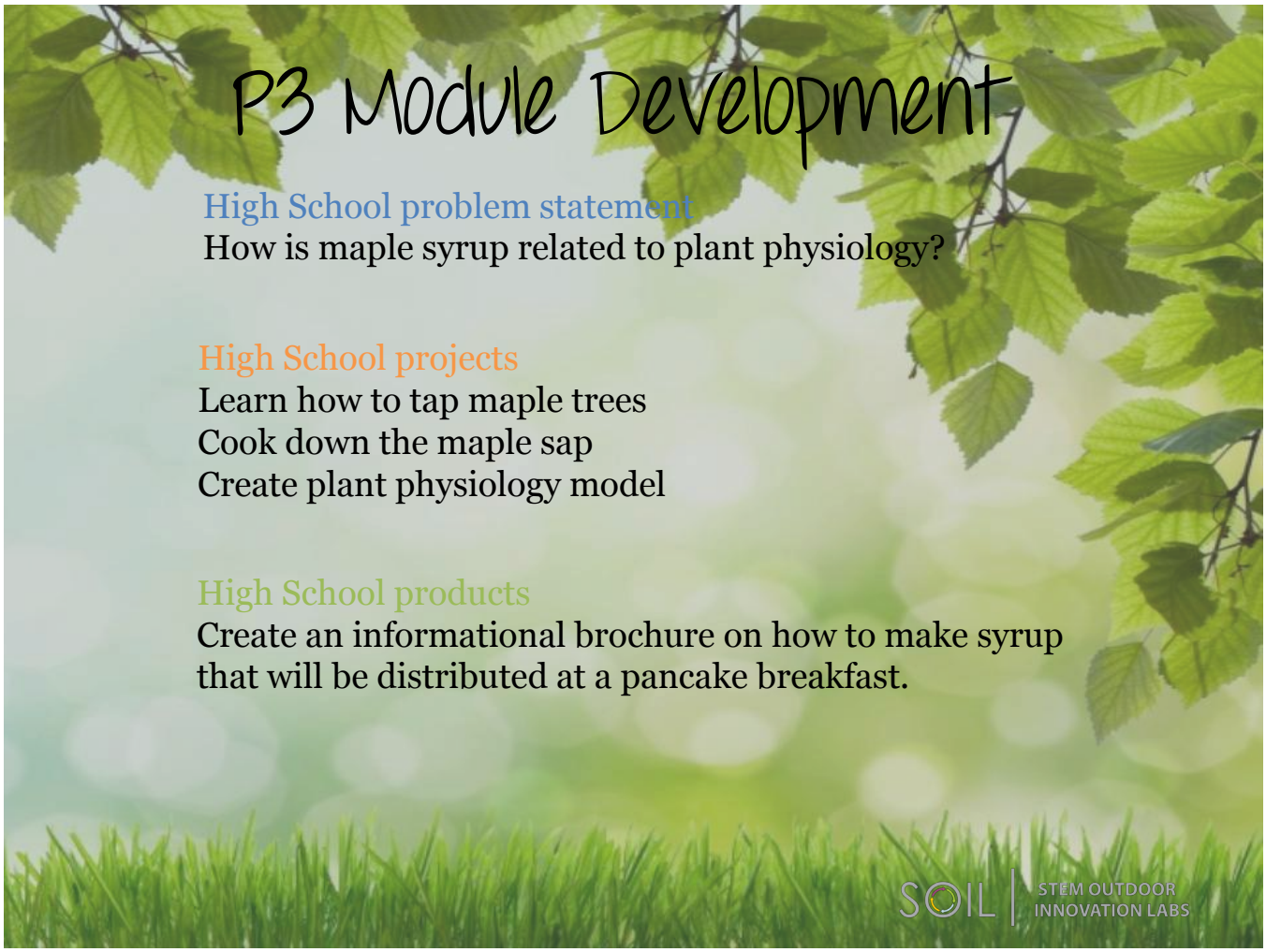
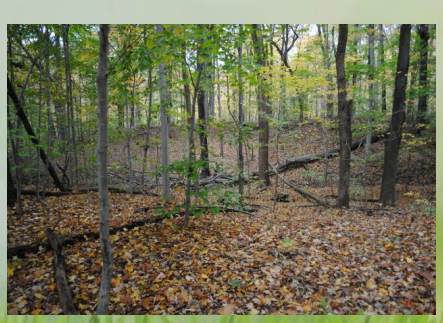

P3 Module Development
High School problem statement
How do I identify trees in the summer and winter?
High School projects
Learn and create dichotomous keys
Study plant characteristics and leaf arrangements
Nature observation on trails in the Land Lab
High School products
Create a leaf collection and field guide for trees in the Land Lab that other grade levels can use when they visit the lab.
SOIL | STEM OUTDOOR INNOVATION LABS


P3 Module Development
High School problem statement
How is maple syrup related to plant physiology?
High School projects
Learn how to tap maple trees
Cook down the maple sap
Create plant physiology model
High School products
Create an informational brochure on how to make syrup that will be distributed at a pancake breakfast.
SOIL | STEM OUTDOOR INNOVATION LABS

Next Steps

- Creating a promotional video
- Creating a page on the district website
- Continuing to work with community partners to finish projects
- Completing P3 Modules to support K-12 usage of the Outdoor Learning Environment
- Providing summer professional development
- Determine data points to track use of outdoor learning environments



SOIL | STEM OUTDOOR INNOVATION LABS

LANCASTER CITY SCHOOLS

LANCASTER HIGH SCHOOL
THE PLACE TO BE

Lancaster High School Growing SOIL Presentation

THE PAST FOUNDATION

SOIL | STEM OUTDOOR INNOVATION LABS

LHS Design Process

- Brainstorming among SOIL team
- Surveying of various teacher groups
- Discussions with Maintenance/Grounds
- Development of plan
- Modifications to plan
- Implementation of Plan

THE PAST FOUNDATION

SOIL | STEM OUTDOOR INNOVATION LABS

LHS Team

SOIL Team
(Meet twice per month)
- Mr. Nathan Conrad, Asst. Principal
- Mr. Mont Goss, Science Teacher
- Mrs. Shannon Fish, Art Teacher
- Mr. Brian Griffin, Science Teacher

Focus Group Staff and Teachers
(Meet as-needed, approx. bi-monthly)
- Mrs. Debbie Bates, Culinary Arts
- Ms. Kelli Marvin, English Teacher
- Mr. Anthony Barath, Science Teacher
- Mrs. Suzy Rogers, Art Teacher
- Mrs. Gina Neff, Ag Teacher
- Mr. Rich Hines, Social Studies Teacher
- District Maintenance Personell

Student Organizations
(Volunteer during implementation stage)
- Art Honor Society
- Ecology Club
- FFA/Ag Ed

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Community Partners

Living Waters Pond Supplies, Art Dickson
assisting in final design of courtyard and supplying materials at reduced cost

Ricketts Excavating
source of sandstone blocks at discounted rate

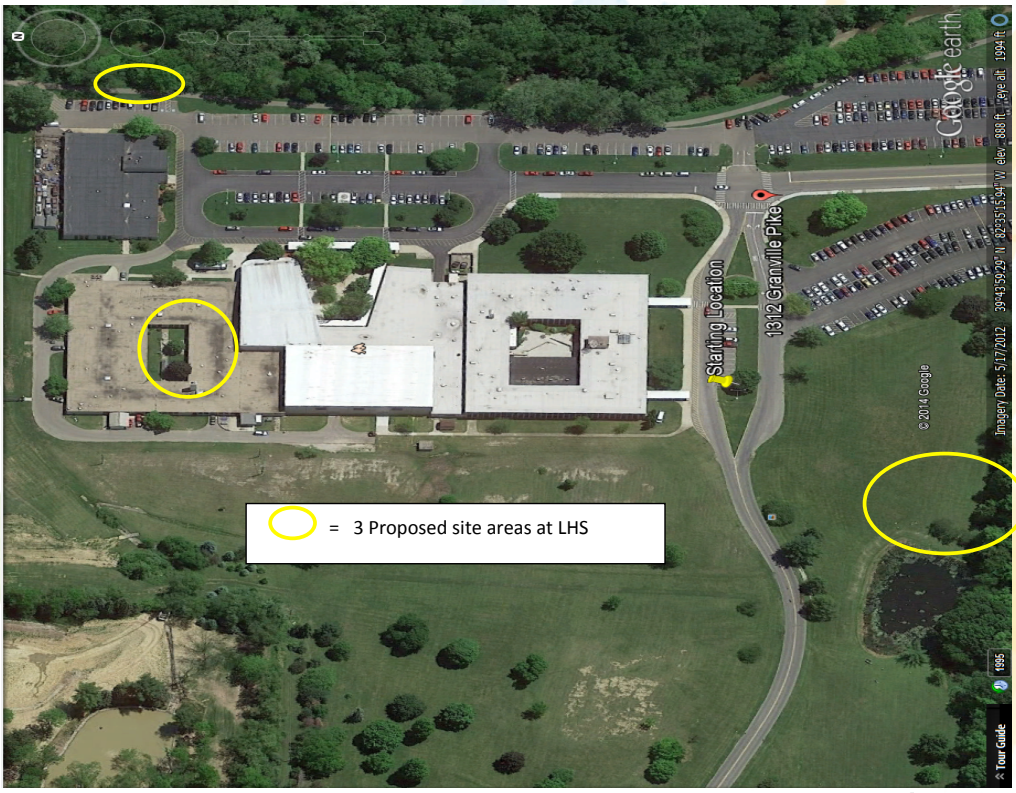
LHS Ecology Club
volunteer force for labor-related tasks and post-implementation management of outdoor spaces

Art Honor Society
volunteer force for labor-related tasks and post-implementation management of outdoor spaces

Integrated Science
volunteer force for labor-related tasks and post-implementation management of outdoor spaces

THE PAST FOUNDATION

Outdoor Classroom Planning and Implementation



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Outdoor Classroom Planning and Implementation

- Pond
  - Pond site will get seating area to maximize the opportunities for student experience.
  - Pond site is an already utilized area by science classes.

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SOIL | STEM OUTDOOR INNOVATION LABS

Outdoor Classroom Planning and Implementation

- Stream
  - Stream site will get seating area to maximize student use.
  - This unique setting is currently underutilized, largely because of distance from classrooms and lack of seating.
  - Teachers can meet their class at the site to save time.

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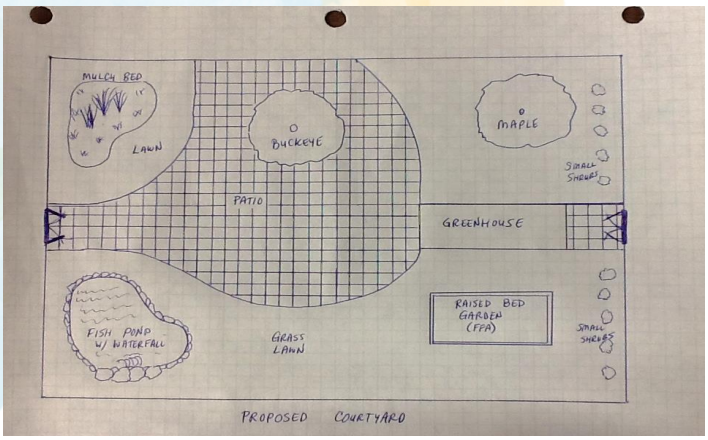
STEM OUTDOOR INNOVATION LABS

Outdoor Classroom Planning and Implementation

- Courtyard
  - Courtyard site will get a complete redesign – Fish pond and stream, herb and butterfly garden, raised garden, new patio and picnic tables.
  - The most accessible of all the sites.
  - The fish pond and butterfly garden will provide unique observational opportunities and visual interest. Improves habitat for our annual nesting ducks (Wildlife Cam).
  - The greenhouse utilization will be increased with the improved raised garden and additional seating in the area.



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Outdoor Classroom Planning and Implementation

- Professional Development on best practices and completed P3 projects will encourage staff (slow adopters) to plan outdoor classrooms as well as provide assistance in developing ideas.
- Utilize TBT (Teacher Based Teams) to design outdoor classroom instruction.

LANCASTER CITY SCHOOLS

LANCASTER HIGH SCHOOL
THE PLACE TO BE

THE PAST FOUNDATION

Outdoor Classroom Planning and Implementation

Going from here

to here

and here

and here!

THE PAST FOUNDATION

P3 Module Development

What's your **problem statement**?

In which type of soil does oregano grow best?
What is the life cycle of a butterfly?
What grows in pond water?
What areas of the stream need erosion control?

What are your **projects**?

Design experiment to test the problem.
Observation/Research/Videorecording of butterflies in garden.
Design an exercise to test pond water.
Map stream and identify zones of erosion.

What are your **products**?

Oregano and scientific journal article of experimental results.
Mini-documentary on the life cycle of a butterfly.
Display of the micro- and macroscopic organisms in pond water.
Stream erosion control proposal (School BOE, City Council).

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Next Steps

- Trans-disciplinary opportunities in the outdoors spaces at LHS are innumerable.
  - We are embracing the concept.
  - By implementing in smaller, more manageable groups, our goal is to increase the usage and innovativeness of the program as our staff discovers the successes and relevance of P3.
- Complete the budgeting and ordering.
- Timeline
  - Spring, Summer & Fall 2015 Implementation of the plan
  - Aug. 2015
    - Showcase to LHS staff (Opening day meeting next school year with emphasis on the usage of space)
    - Showcase to district leaders
  - Sept. 2015
    - Showcase to community and school stakeholders

THE PAST FOUNDATION

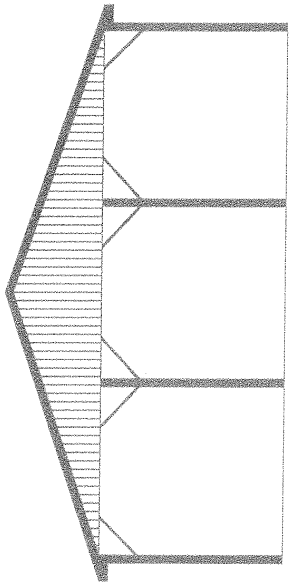
SOIL | STEM OUTDOOR INNOVATION LABS

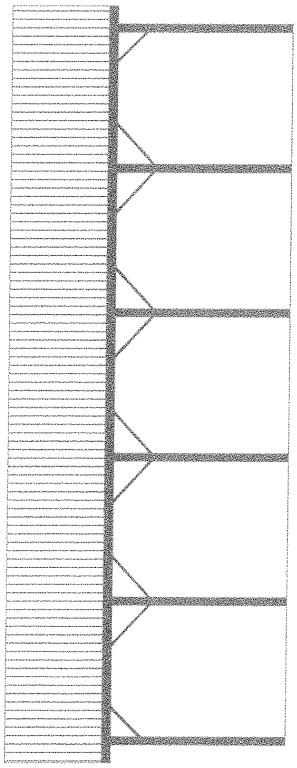
THE PAST FOUNDATION

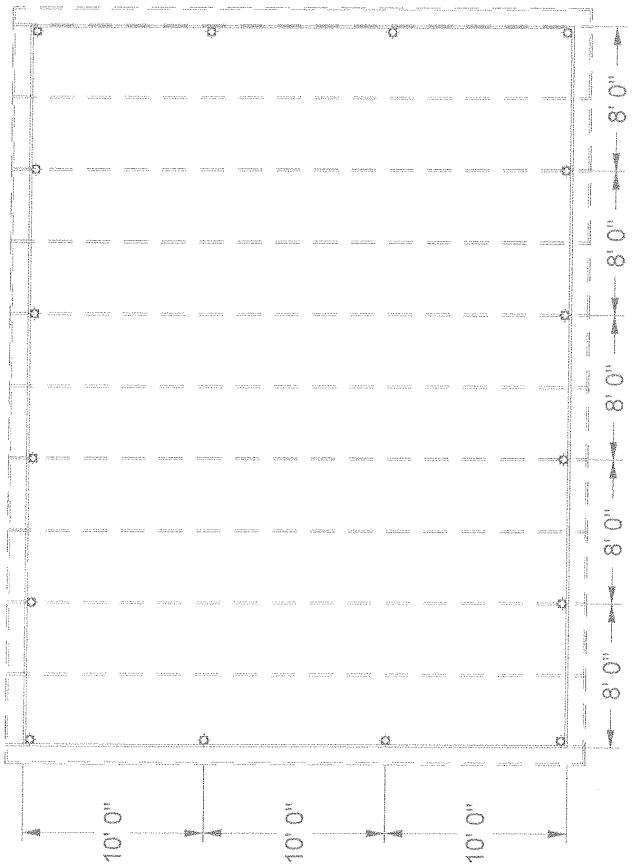
Walnut Township- Millersport Growing SOIL Presentation

THE PAST FOUNDATION

SOIL | STEM OUTDOOR INNOVATION LABS



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RIDGE VIEW LUMBER & SUPPLY
(740) 743-1780
Quality, Value, Service

Ridge View Lumber
4970 US RT 22
Mt Perry, OH 43760

Phone: (740) 743-1780
Fax: (740) 743-1300

PROPOSAL

Proposal ID	Date
26207	3/6/2015

Sales Person	Page
CALEB	1 of 1

Proposal To:

Phone (2) -
Fax
E-Mail
Contact
Description: 30x40x10 Shannon

L#	Quantity	Item ID	Description	Unit	Amount
1	16.00	POSPAD12	12"x4" Concrete Post Pad		
2	12.00	6614CCA	ea 6"x6"-14' SYP .60CCA		
3	4.00	6618CCA	EA 6"x6"-18' SYP .60CCA		
4			Truss Carriers		
5	10.00	21016PT	EA 2"x10" x 16' Treated YP #1		
6	16.00	2610PT	EA 2" x 6" x 10' Treated YP #1		
7			Roof Framing		
8	11.00	SSTRU30	30' 10-1/2" OH 25-5-5 Super Stock Truss 2 & 4' O-C Spacing 2x4TCH		
9	25.00	2416S	ea 2"x 4"-16 SPF #2&Btr		
10	50.00	2414S	ea 2"x 4"-14 SPF #2&Btr		
11	2.00	2616S	ea 2"x 6"-16 SPF #2&Btr		
12	4.00	2614S	ea 2"x 6"-14 SPF #2&Btr		
13	4.00	2618S	ea 2"x 6"-18 SPF #2&Btr		
14			Roof Metal		
15	28.00	MM17	EA TUFF RIB 17'		
16	5.00	BMRC10	EA BM Ridge Cap 10'- 6"		
17	4.00	BMOC18	18' 2" Outside Corner		
18	28.00	OSCLO	Outside Closure Strips		
19	10.00	BMET	10' Eave Trim 4/12 3.5" x 1 1/2"		
20			Gable Metal		
21	10.00	MM8	EA TUFF RIB 8'		
22	1.00	BMOC10	ea. 10' 6" Outside Corner		
23	7.00	BMJC10	ea J-Channel 10' 3"		
24	17.00	MRVFC6W	ea 6" Aluminum Facia White 10'		
25	6.00	SFS15BW250	PK 1-1/2" B White Met Screws 250CT W/G 10 Bags/Box		
26	1.00	POLSPI25	BX 20D 4" Pole Spike 25# Box		
27	1.00	GR0003	bx 1-1/4"Stainless Steel Trim Nails Black 1# (0003)		
28	1.00	SFS25AG250	PK 2-1/2" Ash Gray Met Screws 250CT W/G		

ACCEPTANCE OF PROPOSAL
The above prices, specifications, and conditions are satisfactory and are hereby accepted.
Proposal is valid until March 21, 2015

Signature _____
Date _____

Subtotal	4,280.23
Tax	310.32
Total	**4,590.55**

Please check your list. We agree to provide items listed above. All additional items will be at an additional cost.

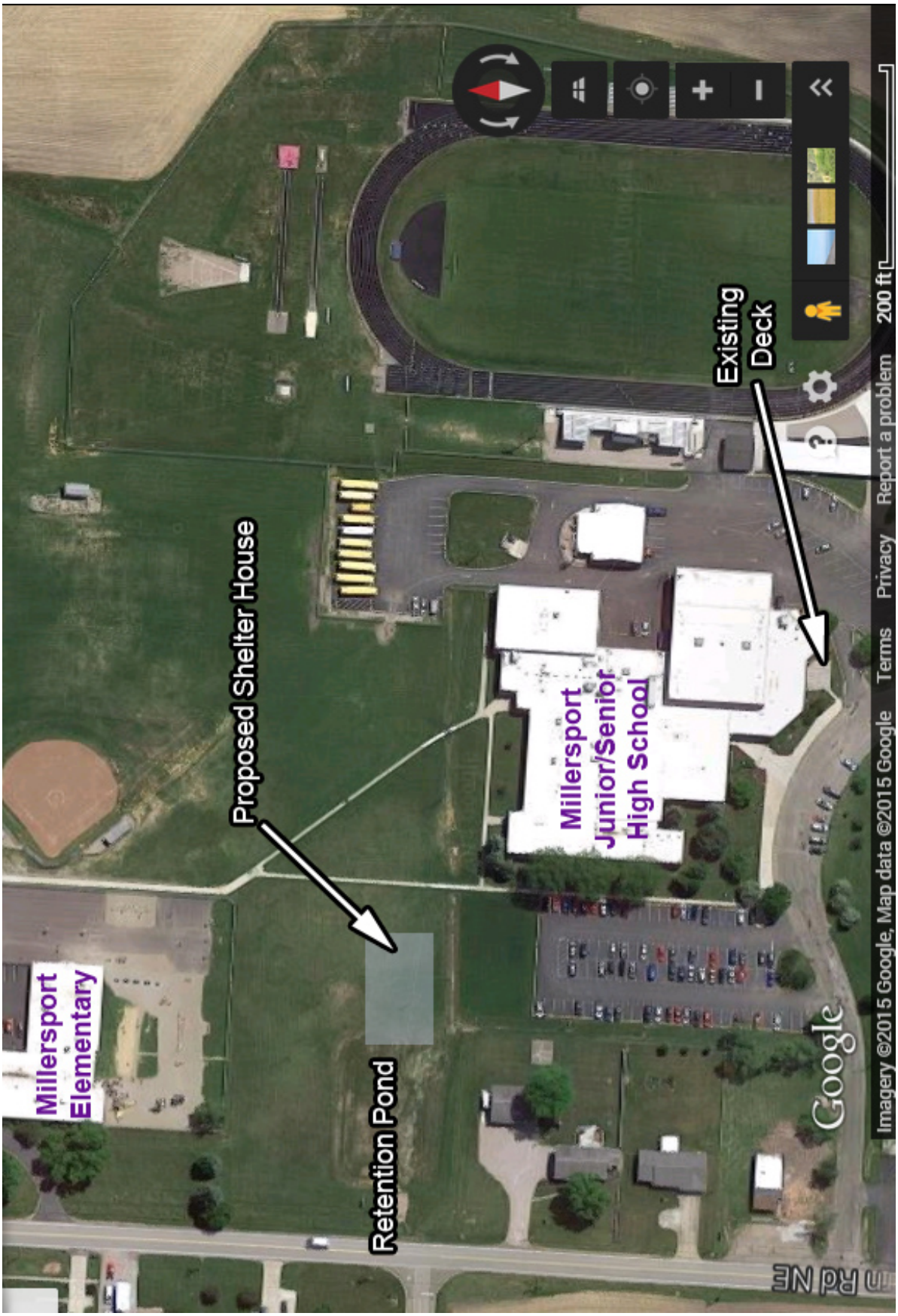
Created by Eagle Business Management Systems

Item	Person-responsible	Cost	Total costs	
30 x 40 Shelter house	Megan Terry	Estimates range from $3600-4200	4,590.50	
Shelter house floor	Megan Terry	Donated		
Sidewalk to shelter house	Megan Terry	Donated		
Picnic tables (6)	J.B. Dick	6 - 8' @ 125.00	750.00	
Raised flower beds	Jenny Sponseller/Caitlin McClurg	Donated		
Trees (8)	Jenny Sponseller/Caitlin McClurg	13 @ $27 each	351.00	See tab 3
Benches (3)	J.B. Dick	3 - 8' @ $300	900.00	
		3 - 4' @ 200.00	600.00	
Cameras (3)	Joe Brownfiled		2,258.50	See Tab 2
Weather Station	J.B. Dick		275.00	
Permits	Jeff Stought		275.00	
		Total		
			10,000.00	

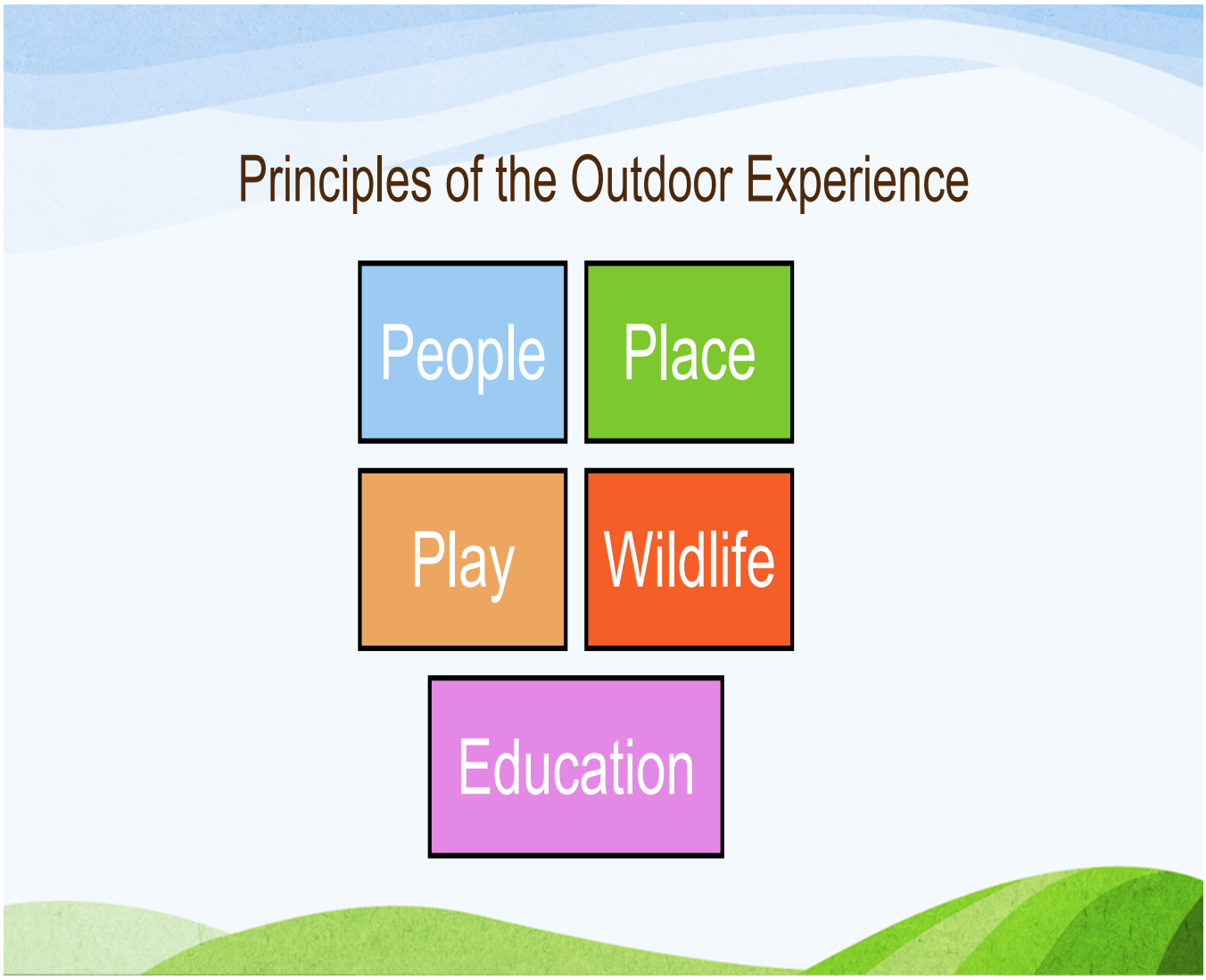
Item	Quantity	Price	Total
GoPro Hero 3+	3	$299.99	$899.97
Solar System	3	$453.00	$1,359.00
Streaming Service			
WiFi		?	
			$2,258.97

Link
http://shop.gopro.com/cameras/hero3plus-silver/CHDHN
http://cam-do.com/GoProSolarSystem.html
http://www.ivideon.com/


Part Sun/Sol parcial
Morning Sunlight Only
Flowering
$27.00
Cherokee Brave Dogwood
Cherokee Cornejos Magníficos
Cornus florida 'Cherokee Brave'
Bloom Season Spring Summer Fall Winter
MATURE SIZE
1 YEAR
Dark reddish-pink flowers
LOWE'S
Part Sun/Sol parcial
Morning Sunlight Only
Flowering
$27.00
Pink Flowering Dogwood
Floración de cornejo Pink
Cornus florida var. rubra
Bloom Season Spring Summer Fall
MATURE SIZE
1 YEAR
Deep pink flowers
LOWE'S


Existing Deck
Proposed Shelter House
Millersport Junior/Senior High School
Millersport Elementary
Retention Pond
Google
Imagery ©2015 Google, Map data ©2015 Google
Terms
Privacy
Report a problem
200 ft


Federal Hocking
Land Lab


Principles of the Outdoor Experience
People
Place
Play
Wildlife
Education

Project Indicators

- Principle Impacts
- Educational Opportunities

Some Things to Consider

- Science-Based Development and Participation
- Another Year of COMCorps Assistance
- Each Project Open to Larger Community

People | Place

Weather Station Upgrades

- WiFi Weather device for HS
- Climate change education
- Raspberry area development

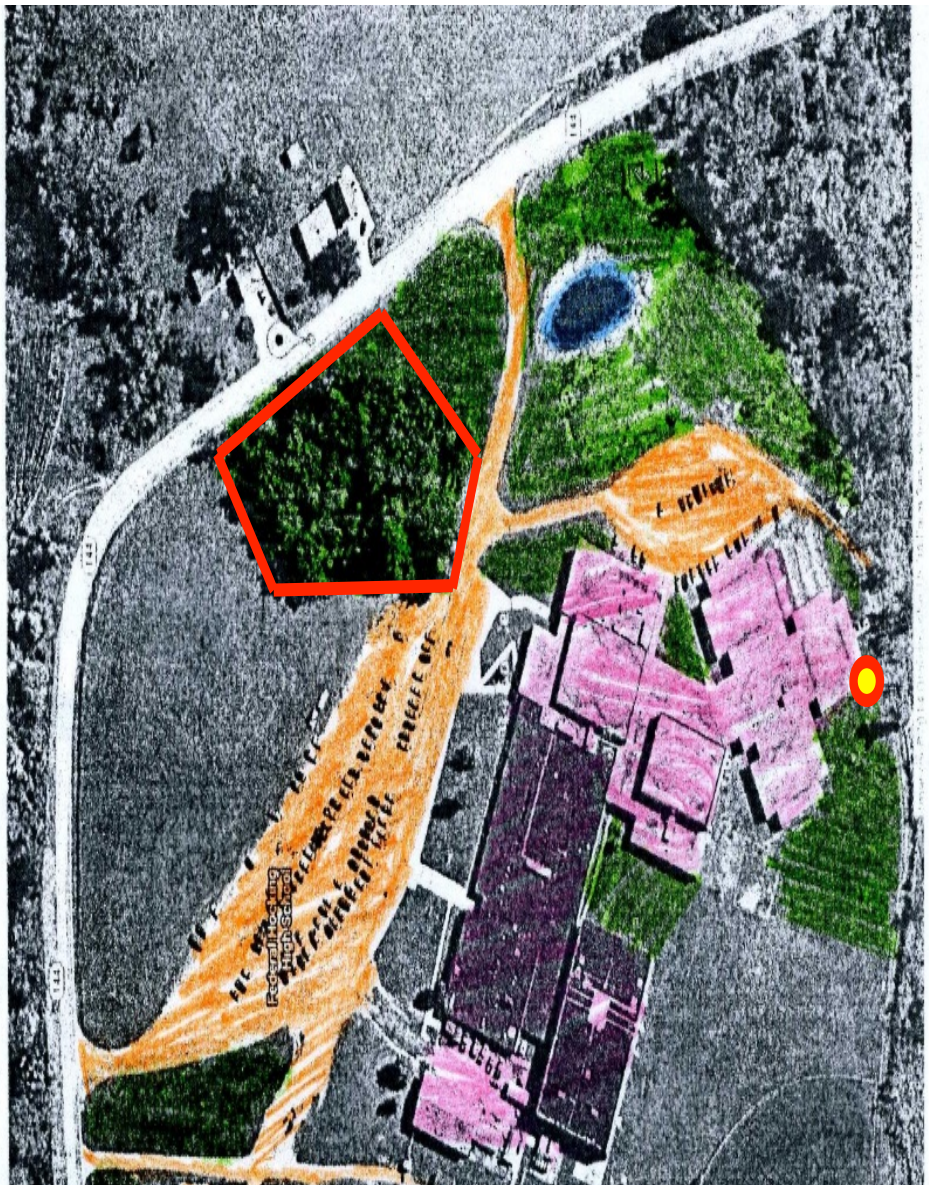
Building A Prairie

Wildlife

Place

- Observing wildlife of different "ecosystems"
- Identification, literature, landmark
- Commitment to Sustainability


SCHOOL
ENTRANCE

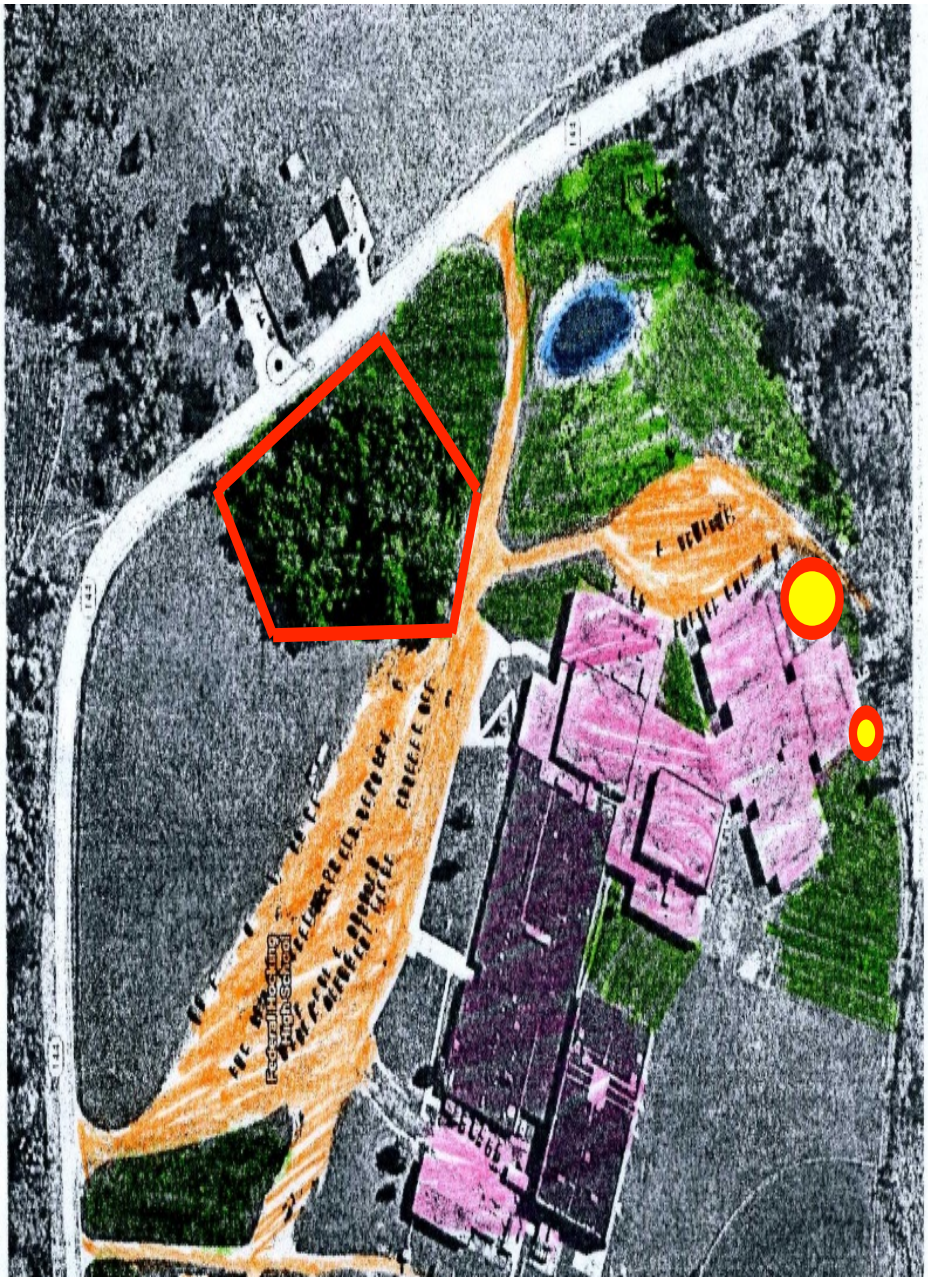


Tree-trail Expansion & Woodlot Upgrades

People

Wildlife

- Tree Identification
- Building Accessibility
- Promoting Native Expansion
- Interdisciplinary Escape



The School Garden: Capacity-Building

People

Place

Wildlife

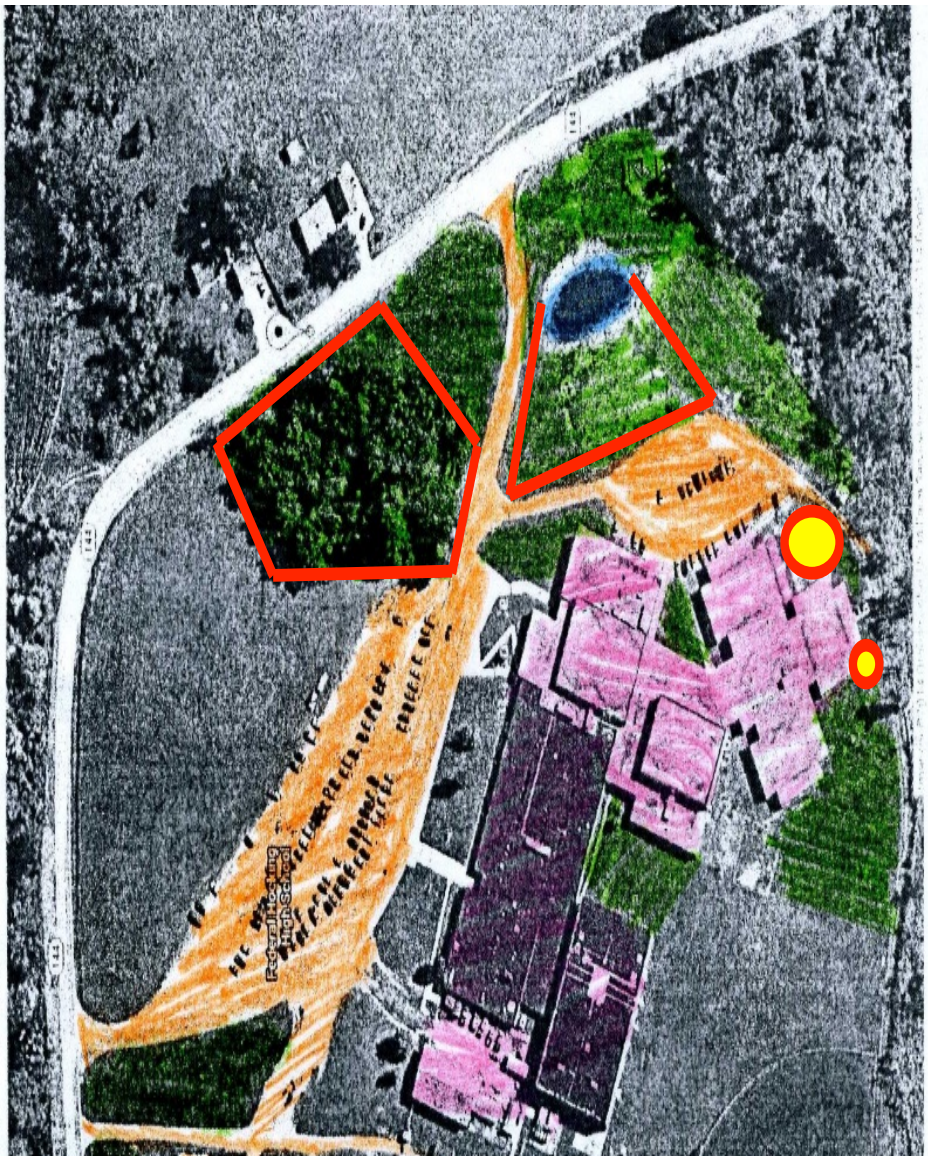
- Growing to Build Community
- Connecting Land Lab Projects
- The Garden: A World in Itself

Composting: Capacity-Building

People

Play

- Connecting Land Lab Projects
- Life Cycle of Matter
- Teaching Moments and A School Commitment



Improving Pond Site Usability

Wildlife

Place

People

- Education of the Pond Ecosystem
- Relationship-Building with Maintenance Team
- Connecting Land Lab Projects

People | Place | Play | Wildlife

Outdoor Classroom #1

Bridge: Pond and Woodlot

Outdoor Classroom #2

Pollinator Garden

For All and For One

Cross Country and Frisbee Golf

Bird and Bat Boxes

Play

The Mobile Land Lab

Wildlife

Other Opportunities

- Donated Sculpture and Senior Project Creations
- Land Lab Open to Artist Interpretation
- Bringing in Community Partners
- Each space created can meet course goals OUTSIDE of the school

As an extension of the TOPIC

Using AmeriCorps Member To Grow

- Creating and presenting safety rules and procedures in using the Land Lab
- Presentations on how outdoor learning provides health benefits and a respect for nature
- Short outings better, BUT organizing community-investment events can give a boost
- Current projects to expand with Land Lab: Being school leader on composting, using garden for salad bar, leading physical activity in exploratories or PE classes, Cooking Club lessons with enough time to eat outside
- Older mentor that is not "the teacher"


THE PAST FOUNDATION
FAIRFIELD COUNTY OHIO
HOCKING COLLEGE
THANK YOU

GROWING SOIL | STEM OUTDOOR INNOVATION LAB | PAST InnovationLab | Fairfield County Educational Service Center | HOCKING COLLEGE

Growing SOIL Completed Modules (Page 1)

District	Name of Module	Content Area	Grade Level
Reynoldsburg	Contaminants in local water that could affect the sustainability of an ecosystem	Science, Math, Social Studies, ELA	7th Grade
Bio-Med	Addressing the Emerald Ash Borer in our outdoor lab at Bio-Med	Biology	9th-12th Grade
Reynoldsburg	Educate and Inform the Community about our Wetland and Its uses.	Chemistry, Biology, AP Politics, ELA	9th-12th Grade
Metro Early College	How does a community's water availability impact it's economic stability and sustainability?	Social Studies, Math, Engineering, Science, ELA	9th-11th Grade
National Inventors Hall of Fame	Invasive Species Removal	Social Studies, Math, Language Arts	7th Grade
Columbus City Schools	What is an outdoor innovation lab and how is it used?	Science, Math, Social Studies, ELA	K-8th Grade
Columbus City Schools	How do birds meet basic needs for survival?	Science, Math, Social Studies, ELA	6th-8th Grade
Columbus City Schools	Food Availability	Science, Math, Social Studies, ELA	10th Grade

Growing SOIL Completed Modules (Page 2)

District	Name of Module	Content Area	Grade Level
Fairfield Union	Water Quality	Science	11th-12th Grade
Fairfield Union	Topographic Maps	Science	8th Grade
Fairfield Union	Maple Syrup	Science- Forestry	10th Grade
Lancaster City Schools	Erosion, Water Purification, Waste Management, Air Pollution	Environmental Sciences	9th-12th Grade
Millersport-Walnut Township	How do changes to Buckeye Lake affect our community, wildlife, and water quality?	Biology, Math, Economics, Science (Middle School), Chemistry	6th Grade-12th Grade
Millersport- Walnut Township	How does the low water level of Buckeye Lake affect the local Economy?	Economics	12th Grade
Federal Hocking Local School District	Habitats Around Us	Science- Ecology	7th Grade

QUARTER: 1 TEACHER(s): Dustin Few SUBJECT(s): Science Math Social Studies ELA

PROBLEM / ISSUE: There are contaminants in our local water that could affect the sustainability of an ecosystem.			
PROJECT: Research water pollution in our area.	PROJECT: explore possible solutions to contamination issues.	PROJECT: Implement plan or system to balance water quality.	PROJECT:
this week DATE/WEEK	DATE/WEEK	DATE/WEEK	DATE/WEEK
Science- Experiment to show condensation and evaporation. Math-Take data and create graphs. Language Arts/S.S.-Research there cycle.	Science-Experiment that shows runoff from pollution. Topography is explored and is shown to be important in runoff. Math- Measuring the distance of plumes in runoff experiments. Language arts/S.S.- researching possible solutions and how they can be applied to our space	Science-Go to innovation lab space and implement system or device. Math-measure and graph results. Language arts/S.S.- persuasive speech to illustrate plan/idea.	Above (Create a commercial or advertisement that illustrates problem and solution.) Science- finish implementing system. Create commercial that will be used to illustrate idea. Language arts/S.S.- create report on economical impact of there idea. Math-display results graphically
DATE/WEEK	DATE/WEEK	DATE/WEEK	DATE/WEEK
Continue projects and graphs.	present projects and write lab report.	Finish graphs and present speeches.	Play commercials, and present reports.

TPBL PROJECT SNAPSHOT

THE PAST FOUNDATION

INSTRUCTOR: Dustin Few GRADE LEVEL: 7 OTHER TEACHERS/SUBJECTS: 7th grade Team START DATE: August 2014

SUBJECT: Science PRESENTATION: August 2014

Theme: Apply Knowledge of the Water Cycle and Ecosystems

Overarching Question: How can we eliminate pollutants from water

Problem / Issue: There are contaminants in our local water that could affect the sustainability of an ecosystem.

PROJECT OVERVIEW

PROJECT *Activities:*

Research water pollution in our area
Explore possible solutions to contamination issues
Implement plan or system to balance water quality
Create a commercial or PSA that illustrates problem and solution.

PRODUCTS *Evidence of Learning:*

Learners will:
Create a graph that will prove the problem does exist.
Write a research paper that suggests possible solutions.
Create a product or system that will help to put these cycles back into balance.
Create a commercial or PSA that will prove that there is a problem, and advertise there solution.

ALIGNED STANDARDS

Design and build a self-sustaining ecosyst
Investigate change in an established mode
Introduce a topic clearly, provide a genera
Conduct short research projects that use s
Make a line plot to display a data set of me
Select and use the elements and principle
Individuals can better understand public is
Data can be displayed graphically to effect
Learners present information, concepts, id

TPBL PROJECT SNAPSHOT

THE PAST FOUNDATION

FORMATIVE ASSESSMENT TOOLS →	CHOOSE SHORT CYCLE ASSESSMENT →	SHORT CYCLE ASSESSMENT
☐ Exit tickets ☐ Think, Pair, and Share ☐ Concept or Web Maps ☐ One Sentence Summary ☐ Observation ☐ Turn to Your Partner ☐ Journal Entry ☐ Hand Signals ☐ Defend / Justify Answer ☐ Other: learner conferences ☐ Other: ____________ ☐ Other: ____________ ☐ Other: ____________	**VOCABULARY** Tests basic understanding of a concept. **COMPARE & CONTRAST** Assesses real-world application of knowledge. **EXTENDED ANSWER** Requires synthesis of knowledge in multiple applications.	Vocab: soil, condensation, evaporation, pr decompose, nutrients, organic matter silt/sand/clay, weathering, consistence (loose, firm, friable), texture (grainy, silky, sticky) fertilizer. .

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STEP 1: TWO-WEEK PROJECT PLAN TEMPLATE THE PAST FOUNDATION

NAME(s): Jennifer Mox/Dustin Few SUBJECT(s): Science, Math, ELA, SS

Problem or Issue Students Will Examine:	How can the water cycle be used to solve the problem of pollution?
Student Activities Throughout the Project:	Researching water cycle Creating graphical representations from real data Using Linear data Persuasive writing Creating PSA Commercial or Informational Poster Testing water quality
Expected Timeline of Project:	10 days +
Materials Needed:	ziplock bags sand hammer cameras computers graphing paper rulers rubrics
Formative Assessment Ideas Used Throughout the Project:	Classwork Homework Draft of Graphs Observation Student work samples Exit tickets rough draft essays Rough draft posters
Product Ideas:	Systems Project Graph PSA Commercial or Informational Poster Persuasive Essay or Speech

STEP 2: TWO-WEEK PROJECT PLAN TEMPLATE THE PAST FOUNDATION

NAME(s): Jennifer Mox/Dustin Few SUBJECT(s): Science, Math, ELA, SS

DAY 1	Science-Experiment that illustrates evaporation and condensation Math-Introduce equations to be used for graphing SS-Watch 2 videos on You Tube: http://www.youtube.com/watchv=TcxLjErWhV8
DAY 2	Science-Review lab and discuss uses of these 2 processes Math-Collect data from evaporation experiment and apply equations to create a graph to represent data collected. SS-Provide introduction background information on pollutants that affect water quality
DAY 3	Science-Topography exploration Math-Give students raw data to test their understanding of equations. Continue to practice using cooperative learning groups. SS//ELA-Research and answer-Where does our city's water come from? What is its
DAY 4	Science-Tie the 2 concepts together and begin discussion how agricultural runoff may be ideas for outdoor learning lab Math-Students will apply equations to topography data SS/ELA-Research and answer-How much water does our community use per
DAY 5	Science-Group students together and explain that they will be in charge of applying their ideas to the outdoor learning lab Math-Finding meaningful data that helps to prove your idea as a group SS/ELA- Research and answer-What are potential sources of water pollution that may
DAY 6	Science-Discuss rubric and expectations with students and first work day Math-Introduce other equations that can be used to graph. SS/ELA-Research and answer-The EPA (Environmental Protection Agency) has identified more than one thousand sources of contamination in drinking water. Public
DAY 7	Science-Work day Math-Practice new equations using other group data sets SS-WHAT IS YOUR DECISION? Pollution can come from many sources including industrial, residential, agricultural, or recreational sources. Are there any of these
DAY 8	Science-Work day Math-Create graphs that help illustrate that pollution is a problem for the community SS-Work day ELA-Work day
DAY 9	Science-Work day Math-Work day SS-Work day ELA-Work day
DAY 10	Groups present PSA Commerical/Poster at a Gallery Hop!! Students present speeches during Gallery Hop!! Students present graphs during Gallery Hop!! Students present systems/projects during Gallery Hop!!

QUARTER: TEACHER(s): Willard & MacKeown SUBJECT(s): Biology

PROBLEM / ISSUE: The emerald ash borer is making its way across the United States wiping out all the ash trees. How do we address the emerald ash borer in our outdoor lab at Bio-Med.

PROJECT: Background information	PROJECT: Utilizing environmental resources.	PROJECT: Cause and Effect	PROJECT: Decision Making
Weeks 1 & 2 *DATE/WEEK*	Weeks 3 & 4 *DATE/WEEK*	Weeks 5 & 6 *DATE/WEEK*	Weeks 7 & 8 *DATE/WEEK*
Topics: Science: Invasive species followed by my specific info on Emerald Ash Borer, life cycle, and how it kills trees. Social Studies: The agricultural industry; history & economics. Math: Linear vs. Exponential Growth and Equations. ELA: Unit Revolving about our role in the environment.	Topics: Science: Plants, Trees, Current uses of Ash trees including homeopathic medicines. Social Studies: Historical uses of Ash Trees, particularly Greek and Roman uses. Math: Patterns and Trends ELA: Poetry Unit focused on works inspired by the outdoors.	Topics: Science: Communities, Ecosystems, and biodiversity. Social Studies: Comparisons of previous tree wipeouts (Am. Chestnut) and current Ash wipeout: Economic impacts. Math: Charts and Graphs ELA: Impacts of infestations. Read the book "Locusts"	Topics: Science: Pesticides and impact on the environment. Social Studies: Role of Govt in environmental protection and civic responsibility/participation. Math: Statistics ELA: Persuasive Writing and Media.
Weeks 1 & 2 *DATE/WEEK*	Weeks 3 & 4 *DATE/WEEK*	Weeks 5 & 6 *DATE/WEEK*	Weeks 7 & 8 *DATE/WEEK*
Products: Science: Field Guide to identify invasive species in our area. Social Studies: Venn Diagram to compare past and current agriculture. Math: Graphical representation of generic population growth. ELA: A "Walden" Narrative about the environment.	Products: Science: Produce a homeopathic medicine from an ash tree. Social Studies: Build a model of a tool the Greeks or Romans would have created out of Ash wood. Math: Sketch patterns found in outdoor lab. ELA: Poem about outdoors. Can be written in lab	Products: Science: Ash tree and borer population survey from lab. Social Studies: Math: Create different graph types: Pie-Percent of infected trees, Bar-# of different trees in forest, Line-Age of tree vs. time to be killed by Ash Borer. ELA-Paper putting self in time frame and how it would have affected you	Products: Science: Presentation on either eradication or prevention technique. Social Studies: Debate on whether or not to act on Emerald Ash Borer infestation. Math: Provide a statistical model for ETAs of EAB to different locations. ELA: PSA on pesticides or EAB

TPBL PROJECT SNAPSHOT

THE PAST FOUNDATION

INSTRUCTOR:

GRADE LEVEL: High School

SUBJECT: Science

OTHER TEACHERS/SUBJECTS:

START DATE:

PRESENTATION:

Theme: Invasive Species

Overarching Question: How do we address the Emerald Ash

Problem / Issue: The emerald ash borer is making its way across the United States wiping out all the ash trees. How do we address the emerald ash borer in our

PROJECT OVERVIEW

PROJECT *Activities:*

Two labs:
1.) Pesticide effects on surrounding plants in the SOILab
2.) The effects of pesticides on water quality.
Discussion/Lecture
1.) Food webs (energy transfer)
2.) Biodiversity
3.) Biogeochemical cycles.

PRODUCTS *Evidence of Learning:*

Lab Reports for both Labs
Presentations on eradication and prevention techniques of emerald ash borer.

ALIGNED STANDARDS

HS-LS3-5--Biogeochemical cycles.

HS-LS3-6--Ecosystem Stability

HS-LS4-6--Human impact on environment

FORMATIVE ASSESSMENT TOOLS → CHOOSE SHORT CYCLE ASSESSMENT → SHORT CYCLE ASSESSMENT

- [ ] Exit tickets
- [ ] Think, Pair, and Share
- [ ] Concept or Web Maps
- [ ] One Sentence Summary
- [ ] Observation
- [ ] Turn to Your Partner
- [ ] Journal Entry
- [ ] Hand Signals
- [ ] Defend / Justify Answer
- [ ] Other: Class Discussion
- [ ] Other: _____
- [ ] Other: _____
- [ ] Other: _____

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VOCABULARY
Tests basic understanding of a concept.

COMPARE & CONTRAST
Assesses real-world application of knowledge.

EXTENDED ANSWER
Requires synthesis of knowledge in multiple applications.

1. How can the use of pesticides affect other consumers in a food web?

2. How do humans impact the carbon cycle?

3. How could the use of fertilizers impact the nitrogen cycle?

TPBL PROJECT SNAPSHOT

THE PAST FOUNDATION

INSTRUCTOR:

GRADE LEVEL: High School

SUBJECT: Language Arts

OTHER TEACHERS/SUBJECTS:

START DATE:

PRESENTATION:

Theme: Invasive Species

Overarching Question: How do we address the Emerald Ash

Problem / Issue: The emerald ash borer is making its way across the United States wiping out all the ash trees. How do we address the emerald ash borer in our

PROJECT OVERVIEW

PROJECT *Activities:*

Write a persuasive writing piece.
Read and analyze persuasive media.
Write about your commercial that influenced/impacted you.

PRODUCTS *Evidence of Learning:*

Create a PSA about pesticides or the Emerald Ash Borer.

ALIGNED STANDARDS

CCSS.ELA-LITERACY.SL.9-10.2

CCSS.ELA-LITERACY.SL.9-10.3

CCSS.ELA-LITERACY.SL.9-10.5

CCSS.ELA-LITERACY.WHST.9-10.1

FORMATIVE ASSESSMENT TOOLS	CHOOSE SHORT CYCLE ASSESSMENT	SHORT CYCLE ASSESSMENT

- ☐ Exit tickets
- ☐ Think, Pair, and Share
- ☐ Concept or Web Maps
- ☐ One Sentence Summary
- ☐ Observation
- ☐ Turn to Your Partner
- ☐ Journal Entry
- ☐ Hand Signals
- ☐ Defend / Justify Answer
- ☐ Other: Discussion
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Fold Here

VOCABULARY
Tests basic understanding of a concept.

COMPARE & CONTRAST
Assesses real-world application of knowledge.

EXTENDED ANSWER
Requires synthesis of knowledge in multiple applications.

1. What type of media would be most effective for difference audiences?

2. What emotions do you want to trigger in your audience with an ad?

3. What are some of the components of a print ad to draw the attention and influence the reader.

TPBL PROJECT SNAPSHOT

THE PAST FOUNDATION

INSTRUCTOR:

GRADE LEVEL: High School

SUBJECT: Math

OTHER TEACHERS/SUBJECTS:

START DATE:

PRESENTATION:

Theme: Invasive Species

Overarching Question: How do we address the Emerald Ash

Problem / Issue: The emerald ash borer is making its way across the United States wiping out all the ash trees. How do we address the emerald ash borer in our

PROJECT OVERVIEW

PROJECT *Activities:*

Modeling Linear Equations
Modeling Exponential Equations
Using real data to create models

PRODUCTS *Evidence of Learning:*

Creating a model estimating the ETA of the Emerald Ash Borer across the U.S.

ALIGNED STANDARDS

CCSS.MATH.CONTENT.HSS.ID.C.7

CCSS.MATH.CONTENT.HSS.ID.C.8

CCSS.MATH.CONTENT.HSS.ID.C.9

CCSS.MATH.CONTENT.HSS.MD.A.4

CCSS.MATH.CONTENT.HSS.MD.B.7

FORMATIVE ASSESSMENT TOOLS	CHOOSE SHORT CYCLE ASSESSMENT	SHORT CYCLE ASSESSMENT

- ☐ Exit tickets
- ☐ Think, Pair, and Share
- ☐ Concept or Web Maps
- ☐ One Sentence Summary
- ☐ Observation
- ☐ Turn to Your Partner
- ☐ Journal Entry
- ☐ Hand Signals
- ☐ Defend / Justify Answer
- ☐ Other: Worksheets
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Fold Here

VOCABULARY
Tests basic understanding of a concept.

COMPARE & CONTRAST
Assesses real-world application of knowledge.

EXTENDED ANSWER
Requires synthesis of knowledge in multiple applications.

1. Which type of model would be used to describe population growth. Explain why.

2. Create a linear model using this data. (give data set).

3. Create an exponential model using this data (give data set).

TPBL PROJECT SNAPSHOT

THE PAST FOUNDATION

INSTRUCTOR:

GRADE LEVEL: High School

SUBJECT: Social Studies

OTHER TEACHERS/SUBJECTS:

START DATE:

PRESENTATION:

Theme: Invasive Species

Overarching Question: How do we address the Emerald Ash

Problem / Issue: The emerald ash borer is making its way across the United States wiping out all the ash trees. How do we address the emerald ash borer in our

PROJECT OVERVIEW

PROJECT *Activities:*

1.) Interviewing teachers/administrators, family, and community members on civic responsibility and the environment.
2.) Research on governmental roles in environmental protection at the federal, state, and local level.

PRODUCTS *Evidence of Learning:*

Debate on whether or not the Ash trees in the US should be saved

ALIGNED STANDARDS

Role of government.

Civic participation and responsibility

Correlation to historical events.

Political debate.

FORMATIVE ASSESSMENT TOOLS	CHOOSE SHORT CYCLE ASSESSMENT	SHORT CYCLE ASSESSMENT

- ☐ Exit tickets
- ☐ Think, Pair, and Share
- ☐ Concept or Web Maps
- ☐ One Sentence Summary
- ☐ Observation
- ☐ Turn to Your Partner
- ☐ Journal Entry
- ☐ Hand Signals
- ☐ Defend / Justify Answer
- ☐ Other: Class Discussion
- ☐ Other: Jigsaw
- ☐ Other: _____
- ☐ Other: _____

Fold Here

VOCABULARY
Tests basic understanding of a concept.

COMPARE & CONTRAST
Assesses real-world application of knowledge.

EXTENDED ANSWER
Requires synthesis of knowledge in multiple applications.

1. Should or at what point should the government step in for environmental issues?

2. Is it each of our responsibilities to reduce our carbon footprint?

3. What legislation did you find at different levels of government which are effective or ineffective?

STEP 1: TWO-WEEK PROJECT PLAN TEMPLATE THE PAST FOUNDATION

NAME(s): SUBJECT(s): Biology

Problem or Issue Students Will Examine:	The emerald ash borer is making its way across the United States wiping out all the ash trees. How do we address the emerald ash borer in our outdoor lab at Bio-Med.
Student Activities Throughout the Project:	Pesticide Labs: Test on surrounding plants and water quality.
Expected Timeline of Project:	10 Days (2 Weeks)
Materials Needed:	Pesticides Water samples: Control and from outdoor lab. Plants from the SOILab
Formative Assessment Ideas Used Throughout the Project:	Lab Reports Exit Tickets Class Discussion
Product Ideas:	Presentation on eradication or prevention techniques for the Emerald Ash Borer.

STEP 2: TWO-WEEK PROJECT PLAN TEMPLATE THE PAST FOUNDATION

NAME(s): SUBJECT(s): Science

Day 1	Introduction: Know/Need to Know on Biogeochemical cycles
Day 2	Have different groups make posters about the carbon cycle, nitrogen cycle, water cycle, and how energy cycles through an ecosystem (food webs/trophic levels).
Day 3	Collect plant and water samples from outdoor lab.
Day 4	Test pesticide effects on other plants from around the SOILab.
Day 5	Lab Debrief and Lab Reports Discussion of Food webs and effects on the ecosystem and biodiversity when invasive species are introduced.
Day 6	Pesticide effects on water quality. Lab testing water from outdoor lab (or from an area near agricultural area) compared to a control sample.
Day 7	Lab Debrief and Lab Report Debrief should include a discussion on runoff and the water cycle and effects on other biogeochemical cycles.
Day 8	Students will work on their presentations on Prevention and Eradication Procedures for the Emerald Ash Borer.
Day 9	Students will work on their presentations on Prevention and Eradication Procedures for the Emerald Ash Borer.
Day 10	Students will present their work on Prevention and Eradication Procedures for the Emerald Ash Borer.

STEP 1: TWO-WEEK PROJECT PLAN TEMPLATE THE PAST FOUNDATION

NAME(s): SUBJECT(s): Language Arts

Problem or Issue Students Will Examine:	The emerald ash borer is making its way across the United States wiping out all the ash trees. How do we address the emerald ash borer in our outdoor lab at Bio-Med.
Student Activities Throughout the Project:	Persuasive Writing Analyzing other types of persuasive media Create your own PSA about emerald ash borer or pesticides
Expected Timeline of Project:	10 Days (2 Weeks)
Materials Needed:	Computer Video editing software Magazines, Newspapers, TV commercials
Formative Assessment Ideas Used Throughout the Project:	Exit Tickets Class Discussion
Product Ideas:	PSA on Emerald Ash Borer or Pesticides

STEP 2: TWO-WEEK PROJECT PLAN TEMPLATE THE PAST FOUNDATION

NAME(s): SUBJECT(s): Language Arts

DAY 1	Read a persuasive writing piece. Identify important structural components to influence a reader.
DAY 2	Students will start writing a persuasive piece of their own.
DAY 3	Students continue writing their persuasive writing piece.
DAY 4	Peer editing of persuasive writing. Finish final document and submit for grading.
DAY 5	Pass out different magazine/newspaper advertisements to the students. Have them write down the components of the ad that were used to persuade the reader. Also think about the target audience. Share in small groups.
DAY 6	Watch TV advertisements and listen to some radio ads. Have students write down components of these ads and target audience information. Have class discussion on how these are different from the print ads.
DAY 7	Do a short writing about their favorite commercial or a commercial that has influenced you to buy something and explain why. This can be shared with the class.
DAY 8	Work on PSA video for your topic.
DAY 9	Work on PSA video for your topic.
DAY 10	Present PSA on Pesticides or Emerald Ash Borer

STEP 1: TWO-WEEK PROJECT PLAN TEMPLATE THE PAST FOUNDATION

NAME(s): SUBJECT(s): Math

Problem or Issue Students Will Examine:	The emerald ash borer is making its way across the United States wiping out all the ash trees. How do we address the emerald ash borer in our outdoor lab at Bio-Med.
Student Activities Throughout the Project:	Practice Modeling both Linear and Exponential Data Creating graphical representations from real data.
Expected Timeline of Project:	10 Days (2 Weeks)
Materials Needed:	Computers Data Sets Graph Paper
Formative Assessment Ideas Used Throughout the Project:	Homework Practice Graphs
Product Ideas:	Present a statistical model for estimated time of arrival for the emerald ash borer.

STEP 2: TWO-WEEK PROJECT PLAN TEMPLATE THE PAST FOUNDATION

NAME(s): SUBJECT(s): Math

DAY 1	Assumptions that are made when modeling. How to determine rates as a function of time. Start Linear regression and modeling.
DAY 2	Linear regression and modeling.
DAY 3	Linear regression and modeling.
DAY 4	Exponential modeling.
DAY 5	Exponential modeling.
DAY 6	Exponential modeling.
DAY 7	Practice modeling with real data sets.
DAY 8	Work on graphical representations of emerald ash borer ETA for your location.
DAY 9	Work on graphical representations of emerald ash borer ETA for your location.
DAY 10	Present graphical representation of emerald ash borer ETA for your location.

STEP 1: TWO-WEEK PROJECT PLAN TEMPLATE THE PAST FOUNDATION

NAME(s): SUBJECT(s): Social Studies

Problem or Issue Students Will Examine:	The emerald ash borer is making its way across the United States wiping out all the ash trees. How do we address the emerald ash borer in our outdoor lab at Bio-Med.
Student Activities Throughout the Project:	Interviews about civic duty and environmental responsibility. Research Government roles in environmental protection. Guest speaker from a local environmental agency and/or National/State Park.
Expected Timeline of Project:	10 Days (2 Weeks)
Materials Needed:	Recording Device (Could just be paper and pencil) Computer/Internet
Formative Assessment Ideas Used Throughout the Project:	Exit Tickets Class Discussion Practice debates
Product Ideas:	Debate on whether or not to try to save the Ash Trees.

STEP 2: TWO-WEEK PROJECT PLAN TEMPLATE THE PAST FOUNDATION

NAME(s): SUBJECT(s): Social Studies

Day 1	General discussion on civic responsibility and to the environment.
Day 2	Prepare questions to use to interview people about their thoughts/views on civic responsibility and to the environment. Interview a few people around school with prepared questions. HW: Interview family and community members.
Day 3	Present their findings to the class. Discuss ways to reduce their impact on the environment; specifically things that could be done to the outdoor lab.
Day 4	Class is taken to the outdoor lab to do some of the activities discussed the day before. Ideas could include picking up trash, doing something to reduce runoff, planting trees, starting a recycling program, planting a garden, or any other ideas the students develop.
Day 5	Guest Speaker from a government agency to talk about civic responsibility. Environmental focus would be important.
Day 6	Split into groups. Different groups to research federal, state, and local environmental legislation. Do a jigsaw to share information found.
Day 7	Discussion on what law found the day before were good, which need improve/revamped, and what new laws need to be put in place to protect the environment.
Day 8	Divide up into two debate groups on whether to save Ash trees or not. Start developing arguments.
Day 9	Continue to work in debate groups to develop counter arguments.
Day 10	Debate on whether or not to save the Ash trees.

QUARTER: 1 TEACHER(s): Schultz, Ladowitz, Sabetta, Gee SUBJECT(s): Chem., Bio., AP Politics., ELA

PROBLEM / ISSUE: Educate and Inform the Community About our Wetland and Its uses.

PROJECT:	PROJECT:	PROJECT:	PROJECT:
Take a census of macro organisms in wetland habitat. Establish processes for species monitoring throughout school year.	Determine the quality and contents of water from various places in wetland. Establish testing methods for monitoring throughout school year.	Establish a website for sharing pictures and stories from our wetland. Use social media to engage Reynoldsburg community.	Discuss the economic benefits to wetlands and watershed protection, with a tie-in to policy. http://water.epa.gov/type/wetlan
8/13 *DATE/WEEK*	8/20 *DATE/WEEK*	8/27 *DATE/WEEK*	9/03 *DATE/WEEK*
Background Information and early trials of surveying techniques. (SCIENCE) Content Intro. (SS) Social Media as Language Study (ELA)	Analyze results of trial tests/surveys. Design procedure for testing wetland areas. (SCI) Policy Research (SS) Twitter Project (ELA)	Perform experiments. REDESIGN (SCI) Write defense of wetland (SS) How can social media engage our community? (ELA)	Perform new experiments. Establish protocols for continuous monitoring. (SCI) Present and revise defense of wetland (SS) Create site and begin wetland updates. (ELA)
9/10 *DATE/WEEK*	9/17 *DATE/WEEK*	9/24 *DATE/WEEK*	10/1 *DATE/WEEK*
Perform new experiments. Establish protocols for continuous monitoring. (SCI) Generate "Visual Defense" of wetland, engaging story/museum exhibit (SS) Set-up sharing for science updates (ELA)	Present findings to community via website. (SCI) Continue working on multi-media "Museum exhibit" (SS) Collect updates from other projects (ELA)	DIscussion and analysis of results. (SCI) Poster/presentation creation (ALL)	Presentations (ALL)

STEP 1: TWO-WEEK PROJECT PLAN TEMPLATE THE PAST FOUNDATION

NAME(s): Sabetta SUBJECT(s): Social Studies

Problem or Issue Students Will Examine:	Given the twin realities of suburban sprawl and demand for potable water, students will explore the economic costs and benefits of wetlands construction and preservation in the context of living along a suburban edge of a major American city.
Student Activities Throughout the Project:	- Research wetlands and watersheds from an economic and policy basis - Create a model marketing presentation for a high-density planned urban development (such as a condominium complex)
Expected Timeline of Project:	A two week time frame using 45-50 minute periods over ten days should be adequate for this plan
Materials Needed:	Background on the economic benefits of wetlands: http://water.epa.gov/type/wetlands/upload/wetlands-economic-benefits.pdf Background on constructed wetlands for developments: http://www.nachi.org/constructedwetlands.htm; http://stateofthecoast.noaa.gov/wetlands/ecoservices.html Background on "dense" living spaces: http://www.morpc.org/pdf/morpc_density_brochure_CS3.pdf Presentation software
Formative Assessment Ideas Used Throughout the Project:	• Plus/delta charts • Concept web maps • Observation • Learner conferences (individual and small groups) • Draft review of marketing plan and suburban development
Product Ideas:	• Marketing plan for planned urban development • Pictures/digital simulations/physical models of urban development

STEP 2: TWO-WEEK PROJECT PLAN TEMPLATE THE PAST FOUNDATION

NAME(s): Sabetta SUBJECT(s): Social Studies

Day 1	Introduce economics as the method by which society decides how to use scare resources, NOT simply "money". Brainstorm how expanding urban boundaries and growing populations create demands on scarce water systems (both in terms in potable water delivery and in waste water treatment)
Day 2	Research - using the attached websites, students will determine (in groups of three or four) at least six positive economic attributes of wetlands
Day 3	Define - using their research, student groups will create a central guiding reason why a community should care about wetland creation and preservation. This reasoning will be written as a message slogan for marketing their planned urban development.
Day 4	Review - student groups will review "Dense by Design," and determine the best way, given their respective slogans, to build a development around a wetland preservation area. Remember that their designs should respect the integrity of the wetland while promoting the slogan that was crafted from their research.
Day 5	Groups will craft their initial sketches of their developments - each development must cover ten acres and accommodate 2,000 households. While the size of the wetland is important (and must be no smaller than four acres - about three football fields), special attention should be given to the hydroperiod of the wetland for species diversity.
Day 6	Consider the initial sketch - how much developed living space does each person have? How much do they have at home? Would they prefer what they are proposing to what they currently have? How does this reflect or detract from their initial marketing concept?
Day 7	Revamp - groups will either redraw their developments to allow for new living spaces OR retool their marketing plan to reflect their sketches.
Day 8	Finalize - create finished products for marketing and final sketches/models for the developments.
Day 9	Share - student groups will present their marketing plans and slogans along with their developments to the class at large.
Day 10	Reflect - given the benefits of wetlands development and dense living, is the problem of environmental living a physical one (restricted by scarcity of space), a socio-psychological one (restricted by unlimited social wants), or a combination of both? How will the natural and social sciences need to work together in the 21st

STEP 1: TWO-WEEK PROJECT PLAN TEMPLATE THE PAST FOUNDATION

NAME(s): Schultz SUBJECT(s): AP Chemistry

Problem or Issue Students Will Examine:	Water is considered a pure substance, in that it has one chemical formula or combination of elements. However, in nature water is almost always found with a myriad of chemical and biological species within it. Students will examine water samples from rain water, tap water, and from three sites within the wetland to determine the chemical properties of the various water sources.
Student Activities Throughout the Project:	• Test water samples for conductivity, pH, Metal ions, absorbance, and carbon dioxide concentration. • Analyze results and draw conclusions about the purpose of . • Conduct soil testing of beds, analyze the data and make recommendations for amendment
Expected Timeline of Project:	9 weeks August 13th, 2014 - October 10th, 2014
Materials Needed:	• Vernier probes: pH, CO2, Conductivity, Absorbance • Water testing vials • Water samples from tap, rain water, various quadrants of wetland
Formative Assessment Ideas Used Throughout the Project:	• Concept web maps • Observation • Lab Notes • Learner conferences (individual and small groups) • Pre and post test
Product Ideas:	• Formal Lab Report describing evidence based conclusions of water quality. • Presentation of learning to Wetland team including multi-media exhibit-style display.

STEP 2: TWO-WEEK PROJECT PLAN TEMPLATE THE PAST FOUNDATION

NAME(s): Schultz SUBJECT(s): AP Chemistry

Day 1	Background Information: The chemistry of water and solutions. The Universal Solvent A habitat for microorganisms
Day 2	Review properties of solutions and use simple tests to determine unknown contents. Lab 1: Flame Test Lab 2: pH of household products
Day 3	Evaluate results of simple tests to determine validity of data and propose further tests.
Day 4	Review types of reactions with particular focus on precipitation reactions. Lab 3: How Hard is Your Water?
Day 5	Evaluate results and communicate how precipitation reactions and solution conductivity provide information about water purity.
Day 6	Research: water quality, and common tests, pick at least three tests to perform in wetland.
Day 7	Design: propose a procedure to test the water in wetland areas of eSTEM campus using sound chemical technique to acquire significant data.
Day 8	Build: Perform test and analyze results
Day 9	Evaluate: Revise procedure for tests and communicate why your results could be improved with greater accuracy or precision. Re-test: return to wetland to perform improved tests.
Day 10	Discuss/Share: Present findings to class. Make a preliminary decision about which tests are the most effective and create timeline for continuing to monitor water quality.

BACKMAP

THE PAST FOUNDATION

QUARTER: TEACHER(s): SUBJECT(s): S. Studies, Math, Engineering, Science, ELA

PROBLEM / ISSUE: How does a community's water availability impact its economic stability and sustainability?

PROJECT: Water Transport	PROJECT: Water Treatment	PROJECT: Water Shortage/Drought	PROJECT: Economic Development
Question: How can one carry enough water to meet daily needs?	Question: What needs to be removed from water to make it safe to drink?	Question: What are the leading causes of water shortages?	Question: How has access to clean water lead to economic development and sustainability?
Kickoff/S. Studies *DATE/WEEK*	**Engineering/Science** *DATE/WEEK*	**Engineering/Science** *DATE/WEEK*	**Social Studies** *DATE/WEEK*
- Hook Day (Introduction to project[s]) - Review design cycle - Research water availability and its affects on communities and their economics Week 1	- Research current modes of water transportation - Research current methods of water purification Week 3	- Test & revise prototype - Begin to formulate professional scientific poster Week 5	- How do increasing populations affect water supply/infrastructure? How can communities plan for natural disasters (water supply)? - Design and write a detailed plan (revolving around preparation for a natural disaster). Week 7
S. Studies/L. Arts *DATE/WEEK*	**Engineering/Science** *DATE/WEEK*	**Mathematics** *DATE/WEEK*	**Final Presentations** *DATE/WEEK*
- Explore the history of developing nations around water sources - How does developing infrastructure impact water availability? ***Outline and develop research papers about one of the above topics Week 2	- Design and construct water purification system (Science) - Design and construct a water transportation system (Engineering) - Test prototype - Revise/modify prototype Week 4	- Does the current water supply support our populations? - As the population grows, how will our water supply fare? Week 6	- Work day -- finish scientific poster and finalize prototype(s) - Soft presentation - Revision day - Final presentation -- involving community partners and school staff as judges Week 8

TPBL PROJECT SNAPSHOT

THE PAST FOUNDATION

INSTRUCTOR: Metro

GRADE LEVEL: 9-11

SUBJECT: English Language Arts

OTHER TEACHERS/SUBJECTS: Science, SS, Engineering, & Mathematics

START DATE:

PRESENTATION:

Theme: Water Sustainability

Overarching Question:

Problem / Issue: The access to clean water varies across the globe due to population, overuse and irresponsibilty

PROJECT OVERVIEW

PROJECT *Activities:*

1. Annotated bibliography
Mini-Lessons and Practice
A. In text Citations, Structure and Format (APA)
B. How to do an advanced search?
C. Credible vs. non-credible

2. Scientific Research Paper
Mini-Lesson and Practice
A. Rubric development/understanding
B. Determining the claim/thesis
C. Finding sources
D. Finding evidence to support claim/thesis
E. Determining the accuracy of sources

3. Scientific Poster
Mini-Lesson and Practice
A. PPT review for poster making
B. Synthesizing information
C. Presentation skills

PRODUCTS *Evidence of Learning:*

1. Annotated Bibliography
2. Scientific Research Poster
3. Research Paper

ALIGNED STANDARDS

CCSSELA-LiteracyW9-101B- Develop claims and counter claims fairly, supplying evidence while point out ;strengths and limit

CCSSELA-LITERACY W9-10.7-8-Conduct short as well as more sustained research projects to answer a question;- gather rel

CCSSELA-LITERACY 9-10.9B-Delineate and evaluate the argument and specific claims in a text

CCSSELA-Literacy.CCRAW9-Draw evidence from literary or informational texts to support analysis, reflection, and research

FORMATIVE ASSESSMENT TOOLS	CHOOSE SHORT CYCLE ASSESSMENT	SHORT CYCLE ASSESSMENT

- ☐ Exit tickets
- ☐ Think, Pair, and Share
- ☐ Concept or Web Maps
- ☐ One Sentence Summary
- ☐ Observation
- ☐ Turn to Your Partner
- ☐ Journal Entry
- ☐ Hand Signals
- ☐ Defend / Justify Answer
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Fold Here

VOCABULARY
Tests basic understanding of a concept.

COMPARE & CONTRAST
Assesses real-world application of knowledge.

EXTENDED ANSWER
Requires synthesis of knowledge in multiple applications.

Compare & Contrast- Using a protocol students will evaluate and offer feedback on thesis statements .

Thesis Development- Determining whether thesis statement is expository, argumentative or analytical.

The Writing Process- Check ins at key moments during the writing process to make certain that the writer is keeping in mind b

TPBL PROJECT SNAPSHOT

THE PAST FOUNDATION

INSTRUCTOR: Metro

GRADE LEVEL: 9-12

SUBJECT: Engineering (IED)

OTHER TEACHERS/SUBJECTS: SS, ELA, Science, & Mathematics

START DATE:

PRESENTATION:

Theme: Water

Overarching Question: How can one carry enough water to meet

Problem / Issue: How does a community's water availability impact its economic stability and sustainability?

PROJECT OVERVIEW

PROJECT *Activities:*

-Research and develop a list of current methods of transporting water (community and individual level) and rate their effectiveness (individual, small group, whole class)
-Individual, then small group, brainstorming around ideas for potential products
-In small groups, research the water needs of a given population in selected region/country of the world (connect to brainstorming activity)
-Individually generate a minimum of 3 concepts (sketches) to be shared with the class
-Generate a list of criteria that will help to narrow down your concepts to the final product idea (decision matrix)
-Design, test, revise prototype - develop and submit final product

PRODUCTS *Evidence of Learning:*

-Graphic organizers displaying research on water needs and country/regions
-Rough sketches of prototypes (with dimensions being input to CAD)
-Decision matrix
-Final sketch + CAD model and explanation of product
-Final presentation -- How did you utilize the design process to get to your final design? How will your design benefit the country you selected?

ALIGNED STANDARDS

IED #1: Design a solution or product takin

IED #2: Participate in and apply the proces

IED #3: Students will develop an understa

IED #4: Students will develop an understa

FORMATIVE ASSESSMENT TOOLS	CHOOSE SHORT CYCLE ASSESSMENT	SHORT CYCLE ASSESSMENT

- ☐ Exit tickets
- ☐ Think, Pair, and Share
- ☐ Concept or Web Maps
- ☐ One Sentence Summary
- ☐ Observation
- ☐ Turn to Your Partner
- ☐ Journal Entry
- ☐ Hand Signals
- ☐ Defend / Justify Answer
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Fold Here

VOCABULARY
Tests basic understanding of a concept.

COMPARE & CONTRAST
Assesses real-world application of knowledge.

EXTENDED ANSWER
Requires synthesis of knowledge in multiple applications.

Compare & Contrast - Assess how various shapes would perform as containers to transport water in students' selected region/country.

TPBL PROJECT SNAPSHOT

THE PAST FOUNDATION

INSTRUCTOR: Metro

GRADE LEVEL: 9-12

SUBJECT: Math

OTHER TEACHERS/SUBJECTS: Engineering, ELA, SS, & Science

START DATE:

PRESENTATION:

Theme: Water

Overarching Question: How can one carry enough water to meet daily needs?

Problem / Issue: How does a community's water availability impact its economic stability and sustainability?

PROJECT OVERVIEW

PROJECT *Activities:*

-Research & develop a list of current methods of transporting water and rate their effectiveness
-In small groups, research the water needs of a given population in selected region/country of the world
-Individual, then small group, brainstorming around ideas for potential products
-Individually generate a minimum of 3 concepts (sketches with dimensions + equations for volume of product)
-Design, test, revise prototype -- develop and submit final product

PRODUCTS *Evidence of Learning:*

-Graphic organizers displaying research on water needs and country/regions
-Rough and final sketches of prototypes with dimensions and volume equations
-Final design of prototype with all required math components
-Final presentation

ALIGNED STANDARDS

Geometric Measurements & Dimensions

- Use volume formulas for cylinders, pyramids, cones, & spheres, to solve problems

Modeling with Geometry

- Apply geometric methods to solve design problems

FORMATIVE ASSESSMENT TOOLS	CHOOSE SHORT CYCLE ASSESSMENT	SHORT CYCLE ASSESSMENT

- [x] Exit tickets
- [ ] Think, Pair, and Share
- [x] Concept or Web Maps
- [ ] One Sentence Summary
- [x] Observation
- [ ] Turn to Your Partner
- [ ] Journal Entry
- [x] Hand Signals
- [ ] Defend / Justify Answer
- [ ] Other: _____
- [ ] Other: _____
- [ ] Other: _____
- [ ] Other: _____

Fold Here

VOCABULARY
Tests basic understanding of a concept.

COMPARE & CONTRAST
Assesses real-world application of knowledge.

EXTENDED ANSWER
Requires synthesis of knowledge in multiple applications.

Compare & Contrast -- Assess how various shapes would perform as containers to transport water in students' selected region/country.

TPBL PROJECT SNAPSHOT

THE PAST FOUNDATION

INSTRUCTOR: Metro

GRADE LEVEL: 9-12

SUBJECT: Science

OTHER TEACHERS/SUBJECTS: Engineering, ELA, SS, & Mathematics

START DATE:

PRESENTATION:

Theme: Water

Overarching Question: What needs to be removed from water to make it safe to drink?

Problem / Issue: How does a community's water availability impact its economic stability and sustainability?

PROJECT OVERVIEW

PROJECT *Activities:*

-Research & develop a list of current methods of water treatment/filtration and rate their effectiveness
-In small groups, research the water needs of a given population in selected region/country of the world
-Individual, then small group, brainstorming around ideas for potential methods/ products (may improve upon existing methods/products)
-Individually generate a minimum of 3 concepts - use decision matrix to select best concept
-Design, test, revise prototype for water treatment/filtration system -- develop and submit final product

PRODUCTS *Evidence of Learning:*

-Graphic organizers displaying research on water quality
-Rough and final sketches of prototypes + decision matrix
-Final design and explanation of prototype
-Final presentation -- How did you utilize the design process to get to your final design? How will your design benefit the country you selected?

ALIGNED STANDARDS

-EVS.912.5b: Recognize that some environmental problems are global

-EVS.912.6b: Identify ways humans have changed the global environment

-Water & Water Pollution: Potable water, water quality, and point source/non-point source contamination

-Energy Resources: Resource availability

FORMATIVE ASSESSMENT TOOLS	CHOOSE SHORT CYCLE ASSESSMENT	SHORT CYCLE ASSESSMENT

- [x] Exit tickets
- [ ] Think, Pair, and Share
- [ ] Concept or Web Maps
- [ ] One Sentence Summary
- [x] Observation
- [ ] Turn to Your Partner
- [x] Journal Entry
- [x] Hand Signals
- [ ] Defend / Justify Answer
- [ ] Other: _____
- [ ] Other: _____
- [ ] Other: _____
- [ ] Other: _____

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VOCABULARY
Tests basic understanding of a concept.

COMPARE & CONTRAST
Assesses real-world application of knowledge.

EXTENDED ANSWER
Requires synthesis of knowledge in multiple applications.

Extended Answer

-How does your final product function?

-How will your final product benefit citizens of the region/country you selected?

-Describe how your final product would impact the economy of your selected region/country (i.e. Is it cost-effective, easy to construct, local materials, etc.).

TPBL PROJECT SNAPSHOT

THE PAST FOUNDATION

INSTRUCTOR:

GRADE LEVEL: MS/HS

SUBJECT: Social Studies

OTHER TEACHERS/SUBJECTS: Engineering, Science, ELA, Math

START DATE:

PRESENTATION:

Theme: Water

Overarching Question: Clean water access impact on economics

Problem / Issue: How does a community's water availability impact its economic stability and sustainability?

PROJECT OVERVIEW

PROJECT *Activities:*

-Research water availability affects on economics.
-Design and write a detailed preparation plan for a natural disaster?
-Explore the history of developing nations around water sources.
-Examine how developing infrastructure impacts water availability.
-Outline and develop a research paper about one of the problem statements.
-Population growth graphs (work in conjunction with math class)

PRODUCTS *Evidence of Learning:*

-Research paper
-Business plan
-Natural disaster preparation plan
-Population Growth Graphs (Population growth and impact on water supply)

ALIGNED STANDARDS

Ohio's New Learning Standards:

K-12 Social Studies: Contemporary World Issues:

-Content Statement #5

-Content Statement #6

-Content Statement #12

-Content Statement #22

FORMATIVE ASSESSMENT TOOLS	CHOOSE SHORT CYCLE ASSESSMENT	SHORT CYCLE ASSESSMENT

- ☐ Exit tickets
- ☐ Think, Pair, and Share
- ☐ Concept or Web Maps
- ☐ One Sentence Summary
- ☐ Observation
- ☐ Turn to Your Partner
- ☐ Journal Entry
- ☐ Hand Signals
- ☐ Defend / Justify Answer
- ☐ Other: Research Paper
- ☐ Other: Disaster Plan
- ☐ Other: _____
- ☐ Other: _____

Fold Here

VOCABULARY
Tests basic understanding of a concept.

COMPARE & CONTRAST
Assesses real-world application of knowledge.

EXTENDED ANSWER
Requires synthesis of knowledge in multiple applications.

Share out conversations

Rough draft of research paper

Rough draft of disaster plan

Compare and contrast

STEP 1: TWO-WEEK PROJECT PLAN TEMPLATE THE PAST FOUNDATION

NAME(s): Metro Early College HS/MS SUBJECT(s): Science, ELA, SS, Engineering, &

Problem or Issue Students Will Examine:	How does a community's water availability lead to its economic stability?
Student Activities Throughout the Project:	-Research water availability affects on economics. -Build and test a water treatment or water transportation prototype. -Explore the history of developing nations around water sources. -Examine how developing infrastructure impacts water availability. -With increasing populations, how can communities alleviate or prepare for water shortages due to natural disasters?
Expected Timeline of Project:	From start to finish, this project will utilize ten classroom days over the course of four weeks to allow students to collaborate, work independently, and research in content areas.
Materials Needed:	-Fabrication Laboratory -Building materials (wood, PVC, glue, etc.) -Scientific Poster -Internet (resources to research)
Formative Assessment Ideas Used Throughout the Project:	-Exit Tickets -Quick Writes -Group Pair-Outs (Peer Reviews) -Design Journals -Testing Prototypes -Whole group weekly mini-presentations about their progress made to-date
Product Ideas:	-Water treatment prototype -Water transportation prototype -Scientific poster -Business plan -Natural disaster preparation plan -Research paper

STEP 2: TWO-WEEK PROJECT PLAN TEMPLATE THE PAST FOUNDATION

NAME(s): Metro Early College HS/MS SUBJECT(s): English Language Arts

Day 1	Kick-off: Hook to engage students in the task at hand.
Day 2	Annotated Bibliography - Compare and contrast credible and non-credible sources with multiple examples - Instruct on the development of APA style in-text citations and bibliography (practice with sample sources) & completing an advance search using the Internet
Day 3	Scientific Research Paper - Develop rubric categories and criteria for research paper (partnership between students and teacher) - Determine the claim/thesis for foundation of paper
Day 4	Scientific Research Paper - Develop rough outline for research paper (intro. + thesis, body, conclusion) - Find and research sources to find evidence to support claim/thesis - Bibliography Development -- Selected sources should be formatted in APA format
Day 5	Work Day -- Research Paper
Day 6	Work Day -- Research Paper (final draft due by Day 10)
Day 7	Scientific Poster - Mini lesson on the format and development of PPT presentation poster - Synthesize and pull information from research paper and prototypes from group members to add to poster
Day 8	Work Day -- Scientific Poster (final draft due by Day 10)
Day 9	- Work Day (poster and research paper) - Walkthrough of presentation to prepare for final presentation day - Revise final products as needed to prepare for presentation day
Day 10	Final Product Review and Final Presentation

STEP 1: TWO-WEEK PROJECT PLAN TEMPLATE THE PAST FOUNDATION

NAME(s): Metro Early College HS/MS SUBJECT(s): Science, Math, Economics

Problem or Issue Students Will Examine:	How does a community's water availability lead to its economic stability?
Student Activities Throughout the Project:	-Research water availability affects on economics. -Build and test a water treatment or water transportation prototype. -Explore the history of developing nations around water sources. -Examine how developing infrastructure impacts water availability. -With increasing populations, how can communities alleviate or prepare for water shortages due to natural disasters?
Expected Timeline of Project:	From start to finish, this project will utilize ten classroom days over the course of four weeks to allow students to collaborate, work independently, and research in content areas.
Materials Needed:	-Fabrication Laboratory -Building materials (wood, PVC, glue, etc.) -Scientific Poster -Internet (resources to research)
Formative Assessment Ideas Used Throughout the Project:	-Exit Tickets -Quick Writes -Group Pair-Outs (Peer Reviews) -Design Journals -Testing Prototypes -Whole group weekly mini-presentations about their progress made to-date
Product Ideas:	-Water treatment prototype -Water transportation prototype -Scientific poster -Business plan -Natural disaster preparation plan -Research paper

STEP 2: TWO-WEEK PROJECT PLAN TEMPLATE THE PAST FOUNDATION

NAME(s): Bruening SUBJECT(s): Engineering

DAY 1	Kick-off: Hook to engage students in the task at hand.
DAY 2	Research to fully understand the problem: How much water do we need per day just to survive? How much does 1L of water weigh? ...Where is the clean water?
DAY 3	Brainstorm Solutions to Problem
DAY 4	Develop top 3 concepts. Then use decision matrix to select best concept.
DAY 5	Develop top water transportation prototype.
DAY 6	Continue to work on prototype.
DAY 7	Test and evaluate prototype
DAY 8	Revise prototype based on tests and evaluations.
DAY 9	Work on final product and rough draft of presentation
DAY 10	Final Product Review and Final Presentation

STEP 1: TWO-WEEK PROJECT PLAN TEMPLATE THE PAST FOUNDATION

NAME(s): Metro Early College H.S. SUBJECT(s): Science, Math, Econ., ELA, SS

Problem or Issue Students Will Examine:	How does a community's water availability impact its economic stability and sustainability?
Student Activities Throughout the Project:	-Research water availability affects on economics. -Build and test a water treatment or water transportation prototype. -Explore the history of developing nations around water sources. -Examine how developing infrastructure impacts water availability. -With increasing populations, how can communities alleviate or prepare for water shortages due to natural disasters? -Population growth graphs (work in conjunction with social studies)
Expected Timeline of Project:	From start to finish, this project will utilize ten classroom days over the course of eight weeks to allow students to collaborate, work independently, and research in content areas.
Materials Needed:	-Fabrication Laboratory -Building materials (wood, PVC, glue, etc.) -Scientific Poster -Internet (resources to research) -Measuring tools (meter sticks, compass, etc.)
Formative Assessment Ideas Used Throughout the Project:	-Exit Tickets -Quick Writes -Group Pair-Outs (Peer Reviews) -Design Journals -Testing Prototypes -Whole group weekly mini-presentations about their progress made to-date
Product Ideas:	- Water Transportation & Treatment Prototypes (effectiveness of various geometric shapes and volume analysis) - Population Growth Graphs vs. Impact on Water Supply Graphs -Scientific poster -Business plan -Natural disaster preparation plan -Research paper

STEP 2: TWO-WEEK PROJECT PLAN TEMPLATE

THE PAST FOUNDATION

NAME(s): Metro SUBJECT(s): Math (partner with Engineering)

Day 1	Kick-off: Hook to engage students in the task at hand. Create and test a water transportation system.
Day 2	Research to fully understand the problem: How much water do we need per day just to survive? How much does 1L of water weigh? ...Where is the clean water?
Day 3	Brainstorm Solutions to Problem (i.e. Compare and contrast various shapes to see which would be the most effective in transporting water in various quantities) - develop rough sketches and dimensions of possible designs.
Day 4	Develop top 3 concepts - include sketches, dimensions with proper units, mathematical formulas demonstrating how to calculate approximate volume, and list potential/desired materials.
Day 5	Develop top water transportation prototype using an appropriate scale.
Day 6	Continue to work on prototype.
Day 7	Test and evaluate prototype.
Day 8	Revise prototype based on tests and evaluations.
Day 9	Work on final product and rough draft of presentation.
Day 10	Final Product Review and Final Presentation

STEP 1: TWO-WEEK PROJECT PLAN TEMPLATE THE PAST FOUNDATION

NAME(s): Metro Early College HS/MS SUBJECT(s): Science, Math, Economics

Problem or Issue Students Will Examine:	How does a community's water availability lead to its economic stability?
Student Activities Throughout the Project:	-Research water availability affects on economics. -Build and test a water treatment or water transportation prototype. -Explore the history of developing nations around water sources. -Examine how developing infrastructure impacts water availability. -With increasing populations, how can communities alleviate or prepare for water shortages due to natural disasters?
Expected Timeline of Project:	From start to finish, this project will utilize ten classroom days over the course of four weeks to allow students to collaborate, work independently, and research in content areas.
Materials Needed:	-Fabrication Laboratory -Building materials (wood, PVC, glue, etc.) -Scientific Poster -Internet (resources to research)
Formative Assessment Ideas Used Throughout the Project:	-Exit Tickets -Quick Writes -Group Pair-Outs (Peer Reviews) -Design Journals -Testing Prototypes -Whole group weekly mini-presentations about their progress made to-date
Product Ideas:	-Water treatment prototype -Water transportation prototype -Scientific poster -Business plan -Natural disaster preparation plan -Research paper

STEP 2: TWO-WEEK PROJECT PLAN TEMPLATE THE PAST FOUNDATION

NAME(s): Bruening SUBJECT(s): Science

DAY 1	Kick-off: Hook to engage students in the task at hand. Create and test a water filter from a 2L bottle.
DAY 2	Research to fully understand the problem: What makes clean water clean? What are the consequences of drinking "dirty" water? What is the most common water pollutant?
DAY 3	Brainstorm Solutions to Problem
DAY 4	Develop top solutions in to three concepts. Then use decision matrix to select best concept.
DAY 5	Develop top water treatment/filtration prototype.
DAY 6	Continue to work on prototype.
DAY 7	Test and evaluate prototype
DAY 8	Revise prototype based on tests and evaluations.
DAY 9	Work on final product and rough draft of presentation
DAY 10	Final Product Review and Final Presentation

STEP 1: TWO-WEEK PROJECT PLAN TEMPLATE THE PAST FOUNDATION

NAME(s): Metro Early College HS/MS SUBJECT(s): Social Studies

Problem or Issue Students Will Examine:	How does a community's water availability impact its economic stability? How will the increasing population size affect water availability and water infrastructure? How can communities plan for natural disasters in terms of having enough clean water? How has water infrastructure and availability impacted developing cities and nations?
Student Activities Throughout the Project:	-Research water availability affects on economics. -Design and write a detailed preparation plan for a natural disaster? -Explore the history of developing nations around water sources. -Examine how developing infrastructure impacts water availability. -Outline and develop a research paper about one of the problem statements. -Population growth graphs (work in conjunction with math class)
Expected Timeline of Project:	From start to finish, this project will utilize 10-12 classroom days over the course of eight weeks to allow students to collaborate, work independently, and research in content areas.
Materials Needed:	-Access to internet and other research materials -Computer
Formative Assessment Ideas Used Throughout the Project:	-Exit Tickets -Quick Writes -Group Pair-Outs (Peer Reviews) -Whole group weekly mini-presentations about their progress made to-date
Product Ideas:	-Research paper -Business plan -Natural disaster preparation plan -Population Growth Graphs (Population growth and impact on water supply)

STEP 2: TWO-WEEK PROJECT PLAN TEMPLATE THE PAST FOUNDATION

NAME(s): SUBJECT(s): Social Studies

Day 1	Research water availability and its affects on communities and their economics.
Day 2	-Research how cities and nations have developed around water sources. -Research how developing infrastructure impact water availability and vice versa.
Day 3	Develop an outline for a research paper for one of the following questions: -How has water infrastructure and availability impacted developing cities and nations? -How does a community's water availability impact its economic stability? -How does developing infrastructure affect water availability?
Day 4	Flesh out a rough draft of the research paper.
Day 5	Work day on paper: peer edit, revise, submit final draft on day 9/10.
Day 6	-Compare and contrast the growth of populations in a given community over the course of the last 500 years. -Compare and contrast the water infrastructure and availability of your chosen community over the course of the last 500 years.
Day 7	Research the following: -What types of natural disasters affect your chosen community? -How do the natural disasters affect your community's water supply/availability? -How can communities plan for natural disasters to alleviate a water shortage?
Day 8	Design and write a detailed plan for your chosen community in case of a natural disaster.
Day 9	Work on final products and rough draft of presentation
Day 10	Final Product Review and Final Presentation

QUARTER: 4 TEACHER(s): Beal; Demangeont; Bugner SUBJECT(s): Social Studies; Math; Language Arts

PROBLEM / ISSUE: Invasive Species Removal			
PROJECT: Math Project: Graph & Analyze Results of Science Fair Project Trials- Practice recording results of multiple trials with paper	PROJECT: Language Arts Project: Analyze Sources for accuracy in .edu websites Review misinformation on web sites with web quest to see how	PROJECT: Language Arts Project: Debate Global Climate Shift as a reality due to human impact; or cyclical, pattern of Natures climate patterns.	PROJECT:
10/1/10-11/20/13 *DATE/WEEK*	1/29/14 *DATE/WEEK*	4/16/14-4/31/14 *DATE/WEEK*	4/17/14 *DATE/WEEK*
Conduct multiple trials of science fair project, and record all measurements, observations, times, and trials in science log book.	Choose five .edu websites to analyze for inaccuracies.	Choose a side to represent in class debate, and begin prepping speech.	Choose one country and research all established trade routes and regulations.
11/29/13 *DATE/WEEK*	2/7/14 *DATE/WEEK*	5/1/14 *DATE/WEEK*	4/22/14 *DATE/WEEK*
Science fair graphs and detailed statistical analysis paragraphs due to Math Learning Coach	Present out inaccuracies, found on .edu, .com, and .gov websites.	Class Global Climate Shift debate.	Use a world map to document trade routes with the United States and its transaction partners.

BACKMAP

THE PAST FOUNDATION

QUARTER: Four TEACHER(s): Justiss SUBJECT(s): Science

PROBLEM / ISSUE: Invasive Species Removal:			
PROJECT: Biome Diorama: Learners research characteristics of a biome.	PROJECT: Owl Pellet Dissection: Learners research the diet of a bird, and record research in journals.	PROJECT: Food Chain: Learners explore a temperate forest biome and record observations.	PROJECT:
3/11/14-3/13/15 DATE/WEEK	3/25/14-3/26/14 DATE/WEEK	4/3/14-4/4/14 DATE/WEEK	4/22/14-4/25/14 DATE/WEEK
Learners create a diorama out of a shoe box to demonstrate biotic & abiotic things found in an ecosystem.	Owl Pellet Dissection – Learners will explore a forest food chain by dissecting an owl pellet.	Learners will create a food chain for Akron, Ohio using common 5 common plants & 5 common animals.	Learners will create a 4 minute video to encourage people to take action to save a severely endangered apex predator.
3/17/14 DATE/WEEK	3/28/14 DATE/WEEK	4/7/14 DATE/WEEK	4/28/14 DATE/WEEK
Museum walk where leaners evaluate their own & peer's biomes using a rubric.	Learners will record their observations in a lab report and will evaluate using a rubric.	Learners will self-evaluate food chains using a rubric.	Learners will complete presentations to the class, and will be peer evaluated using a rubric.

TPBL PROJECT SNAPSHOT

THE PAST FOUNDATION

INSTRUCTOR: Justiss

GRADE LEVEL: 7th

SUBJECT: Science

OTHER TEACHERS/SUBJECTS: Beal Demangeont Bugner

START DATE: 4/29/14

PRESENTATION: 5/19/14

Theme: Invasive Species

Problem / Issue: Autumn Olive Removal

Overarching Question: How can we as Jr. Ecologists assist the

PROJECT OVERVIEW

PROJECT *Activities:*

Learners will visit the National Parks where they will meet a park ranger who will ask them for help to identify, reduce, control and eliminate Invasive Species in the Cuyahoga Valley Metro Parks.

PRODUCTS *Evidence of Learning:*

Learners will:
- Help to remove Privet in the Cuyahoga Valley Metro Park with hand saw and shears.
- Learners will do a presentation on removal methods of invasive plants (mechanical, chemical, biological, manual, or controlled burn).
- Learners will take their parents and family members to the park and will lead them in a privet manual removal.
- Rehabilitate our school's existing flower beds and plant native Ohio plants.
- Demonstrate 80% mastery on an Ecology Post Test.

ALIGNED STANDARDS

Standards: Life Science

Topic: Cycles of Matter and Flow of Energ

Content Statement

Biomes are regional ecosystems characte

The variety of physical (abiotic) conditions

Ecosystems are dynamic in nature; the nu

FORMATIVE ASSESSMENT TOOLS	CHOOSE SHORT CYCLE ASSESSMENT	SHORT CYCLE ASSESSMENT
☐ Exit tickets ☐ Think, Pair, and Share ☐ Concept or Web Maps ☐ One Sentence Summary ☐ Observation ☐ Turn to Your Partner ☐ Journal Entry ☐ Hand Signals ☐ Defend / Justify Answer ☐ Other: Bell Quiz ☐ Other: Learner Conference ☐ Other: _____ ☐ Other: _____	**VOCABULARY** Tests basic understanding of a concept. **COMPARE & CONTRAST** Assesses real-world application of knowledge. **EXTENDED ANSWER** Requires synthesis of knowledge in multiple applications.	Types of removal: Mechanical (chipper); M Compare & contrast various methods of in Explain to your parents the choice of remc

Fold Here

TPBL PROJECT SNAPSHOT

THE PAST FOUNDATION

INSTRUCTOR: Demangeont
GRADE LEVEL: 7th
SUBJECT: Math
OTHER TEACHERS/SUBJECTS: Justiss, Bugner, Beal
START DATE: 4/29/14
PRESENTATION: 5/19/14

Theme: Invasive Species
Overarching Question: How can we as Jr. Ecologists assist the

Problem / Issue: Autumn Olive Removal

PROJECT OVERVIEW

PROJECT *Activities:*

PROJECT OVERVIEW:
Learners will conduct a statistical analysis of autumn olive's population in the Cuyahoga Valley National Park, including the percentage of the population our school removed, and the predicted explosion of the plant without intervention.

PRODUCTS *Evidence of Learning:*

Learners will:
- Compile Field Study Data analysis
- Record Population studies survey
- Graph results of population study
- Find the perimeter, volume & area of Autumn Olive's Present location
- Projected population in 5 & 10 years without invention
- Population study of animals effected by increase in invasive species
- Compare and contrast % of forest covered before & after removal

ALIGNED STANDARDS

CCSS.MATH.CONTENT.7.RP.A.1

CCSS.MATH.CONTENT.7.SP.A.1

CCSS.MATH.CONTENT.7.SP.A.2

CCSS.MATH.CONTENT.7.SP.B.3

FORMATIVE ASSESSMENT TOOLS	CHOOSE SHORT CYCLE ASSESSMENT	SHORT CYCLE ASSESSMENT

- ☐ Exit tickets
- ☐ Think, Pair, and Share
- ☐ Concept or Web Maps
- ☐ One Sentence Summary
- ☐ Observation
- ☐ Turn to Your Partner
- ☐ Journal Entry
- ☐ Hand Signals
- ☐ Defend / Justify Answer
- ☐ Other: Bell Quiz
- ☐ Other: Learner Conference
- ☐ Other: _____
- ☐ Other: _____

Fold Here

VOCABULARY
Tests basic understanding of a concept.

COMPARE & CONTRAST
Assesses real-world application of knowledge.

EXTENDED ANSWER
Requires synthesis of knowledge in multiple applications.

Vocabulary- average, mean, median, mod

Compare and contrast- Compare & contra

Extended answer- Predict the average pe

TPBL PROJECT SNAPSHOT

THE PAST FOUNDATION

INSTRUCTOR: Beal

GRADE LEVEL: 7th

SUBJECT: Social Studies

OTHER TEACHERS/SUBJECTS: Justiss
Demangeont
Bugner

START DATE: 4/29/14

PRESENTATION: 5/19/14

Theme: Invasive Species

Problem / Issue: Autumn Olive Removal

Overarching Question: How can we as Jr. Ecologists assist the

PROJECT OVERVIEW

PROJECT *Activities:*

PROJECT OVERVIEW:
Learners will defend citizens who have brought invasive flora to North East Ohio.

PRODUCTS *Evidence of Learning:*

Learners will:
• Research how trade routes have influenced the spread of invasive flora and fauna
• Use a map to trace the transplanted invasive species back to its original site of origin
• Determine how invasive plants have increased as people assimilate into other cultures and places.

ALIGNED STANDARDS

12. Maps and other geographic represent

13. Geographic factors promote or impede

14. Improvements in transportation, comm

FORMATIVE ASSESSMENT TOOLS	CHOOSE SHORT CYCLE ASSESSMENT	SHORT CYCLE ASSESSMENT

- [ ] Exit tickets
- [ ] Think, Pair, and Share
- [ ] Concept or Web Maps
- [ ] One Sentence Summary
- [ ] Observation
- [ ] Turn to Your Partner
- [ ] Journal Entry
- [ ] Hand Signals
- [ ] Defend / Justify Answer
- [ ] Other: Bell Quiz
- [ ] Other: Learner Conference
- [ ] Other: _____
- [ ] Other: _____

Fold Here

VOCABULARY
Tests basic understanding of a concept.

COMPARE & CONTRAST
Assesses real-world application of knowledge.

EXTENDED ANSWER
Requires synthesis of knowledge in multiple applications.

Vocabulary- Demonstrated in poll on May

Compare and contrast- Demonstrated in d

Extended answer- Demonstrated in prese

TPBL PROJECT SNAPSHOT

THE PAST FOUNDATION

INSTRUCTOR: Crews

GRADE LEVEL: 6

SUBJECT: Science

OTHER TEACHERS/SUBJECTS: 7th grade Team

START DATE: May 31st, 2014

PRESENTATION: April 11th, 2014

Theme: How Does Your Garden Grow

Overarching Question: What can we do to make the soil suitable

Problem / Issue: Coach Justiss assigned my 6th graders the problem of determining how to make the garden ready for planting the native species being

PROJECT OVERVIEW

PROJECT *Activities:*

- Roll out problem, Brainstorm, Conduct Know and Need to Know
- Construct concept maps related to soil.
- Conduct embedded labs (SePup/LabAids)
- Conduct soil testing of beds, analyze the data and make recommendations for amendment
- Conduct research on native plant species and soil zones

PRODUCTS *Evidence of Learning:*

Learners will:

- Develop solutions based on knowledge gathering through embedded labs and quality research to be delivered during presentation of learning. Learners will be conversational about their results and how they arrived at them.
- Score 80% or higher on post test

ALIGNED STANDARDS

Science and Engineering Practices:

Constructing Explanations and Designing

Solutions (MS-ESS1-4),(MS-ESS2-2)

ESS3.C:Human Impacts on Earth Systems

(5-ESS3-1

FORMATIVE ASSESSMENT TOOLS	CHOOSE SHORT CYCLE ASSESSMENT	SHORT CYCLE ASSESSMENT
☐ Exit tickets ☐ Think, Pair, and Share ☐ Concept or Web Maps ☐ One Sentence Summary ☐ Observation ☐ Turn to Your Partner ☐ Journal Entry ☐ Hand Signals ☐ Defend / Justify Answer ☐ Other: learner conferences ☐ Other: _____ ☐ Other: _____ ☐ Other: _____	**VOCABULARY** Tests basic understanding of a concept. **COMPARE & CONTRAST** Assesses real-world application of knowledge. **EXTENDED ANSWER** Requires synthesis of knowledge in multiple applications.	Vocab: soil, composition, observation, decompose, nutrients, organic matter silt/sand/clay, weathering, consistence (loose, firm, friable), texture (grainy, silky, sticky) fertilizer. Compare and Contrast: various plants by soil zines in the US. Using this information what plants would be successful in Akron, Oh. Present using a digital medium. Ext/Resp: Develop a 5 paragraph essay (CRT Framework) based on evidence, describing soil amendment solutions.

Fold Here

TPBL PROJECT SNAPSHOT

THE PAST FOUNDATION

INSTRUCTOR: Justiss & Crews GRADE LEVEL: 7th & 6th

SUBJECT: Science

OTHER TEACHERS/SUBJECTS: Beal Demangeont Bugner

START DATE: 4/29/14

PRESENTATION: 5/19/14

Theme: Invasive Species

Problem / Issue: Autumn Olive Removal

Overarching Question: How can we as Jr. Ecologists assist the

PROJECT OVERVIEW

PROJECT *Activities:*

Learners will grow, harvest and plant Native plants at various Akron Public Schools locations, to raise public awareness of the positives surrounding native North East Ohio flora.

PRODUCTS *Evidence of Learning:*

Learners will:
- Test soil in Outdoor Learning lab
- Generate a list of North East Ohio Native Plants that will succeed well in tested soil
- Plant plants
- Weed, water and grow native plants
- Harvest seeds
- Transplant new seedlings to local elementary schools
- Help elementary students plant and take care of new gardens

ALIGNED STANDARDS

Standards: Life Science

Topic: Cycles of Matter and Flow of Energ

Content Statement

Biomes are regional ecosystems characte

The variety of physical (abiotic) conditions

Ecosystems are dynamic in nature; the nu

FORMATIVE ASSESSMENT TOOLS	CHOOSE SHORT CYCLE ASSESSMENT	SHORT CYCLE ASSESSMENT
☐ Exit tickets ☐ Think, Pair, and Share ☐ Concept or Web Maps ☐ One Sentence Summary ☐ Observation ☐ Turn to Your Partner ☐ Journal Entry ☐ Hand Signals ☐ Defend / Justify Answer ☐ Other: Bell Quiz ☐ Other: Learner Conference ☐ Other: _____ ☐ Other: _____	**VOCABULARY** Tests basic understanding of a concept. **COMPARE & CONTRAST** Assesses real-world application of knowledge. **EXTENDED ANSWER** Requires synthesis of knowledge in multiple applications.	Vocabulary- soil, PH, compost, acidity, prc Compare and contrast- Compare & contra Extended answer- Explain the benefits of

Fold Here

TPBL PROJECT SNAPSHOT

THE PAST FOUNDATION

INSTRUCTOR: Bugner

GRADE LEVEL: 7th

SUBJECT: Language Art

OTHER TEACHERS/SUBJECTS: Justiss Demangeont Beal

START DATE: 4/29/14

PRESENTATION: 5/19/14

Theme: Invasive Species

Problem / Issue: Autumn Olive Removal

Overarching Question: How can we as Jr. Ecologists assist the

PROJECT OVERVIEW

PROJECT *Activities:*

PROJECT OVERVIEW:
Learners will create a Public Service Announcement (PSA) warning about the dangers to the ecosystem of using invasive plants in landscaping of residential homes..

PRODUCTS *Evidence of Learning:*

Learners will:
- Review articles on Invasive flora & fauna
- Read nonfiction articles on invasive plants
- Review authenticity of sources
- Compare & Contrast invasive flora & fauna
- Determine positives & negatives of invasive flora
- Create a Public Service Announcement (PSA)

ALIGNED STANDARDS

CCSS.ELA-LITERACY.RI.7.1

CCSS.ELA-LITERACY.SL.7.1

CCSS.ELA-LITERACY.SL.7.1 Engage effe

CCSS.ELA-LITERACY.RI.7.1

FORMATIVE ASSESSMENT TOOLS	CHOOSE SHORT CYCLE ASSESSMENT	SHORT CYCLE ASSESSMENT
☐ Exit tickets ☐ Think, Pair, and Share ☐ Concept or Web Maps ☐ One Sentence Summary ☐ Observation ☐ Turn to Your Partner ☐ Journal Entry ☐ Hand Signals ☐ Defend / Justify Answer ☐ Other: Bell Quiz ☐ Other: Learner Conference ☐ Other: _____ ☐ Other: _____	**VOCABULARY** Tests basic understanding of a concept. **COMPARE & CONTRAST** Assesses real-world application of knowledge. **EXTENDED ANSWER** Requires synthesis of knowledge in multiple applications.	Vocabulary- Invasive, Native, Flora, Faun Compare and contrast- Compare & contra Extended answer- Complete a PSA warni

Fold Here

STEP 1: TWO-WEEK PROJECT PLAN TEMPLATE THE PAST FOUNDATION

NAME(s): Crews grade 6 NIHFSTEM SUBJECT(s): Science + 7th grade team

Problem or Issue Students Will Examine:	Coach Justiss assigned my 6th graders the problem of determining how to make the garden ready for planting the native species being brought in by the rangers of the CVNP. They were tasked with evaluating the soil beds. This is a problem within a problem run by the 7th grade team on invasive species. Our services were "jobbed out".
Student Activities Throughout the Project:	• Develop solutions based on experimentation and knowledge gathering through research and experimentation to be used for presentation of learning. • Construct concept maps related to soil. • Conduct soil testing of beds, analyze the data and make recommendations for amendment
Expected Timeline of Project:	2 weeks May 31st, 2014 - April 11th, 2014
Materials Needed:	• SePup/LabAids curriculum • Commercial soil testing kits • soil samples from various quadrants of the beds
Formative Assessment Ideas Used Throughout the Project:	• Exit Tickets • Concept web maps • Observation • Lab Notes • Learner conferences (individual and small groups) • Pre and post test
Product Ideas:	• 5 paragraph essay (College Readiness Tools Framework) describing evidence based solutions for soil amendment • Presentation of learning to 7th grade team including materials purchase list for soil amendment

STEP 2: TWO-WEEK PROJECT PLAN TEMPLATE THE PAST FOUNDATION

NAME(s): Crews grade 6 SUBJECT(s): Science + 7th grade team

Day 1	Coach Justiss rolls out the problem. Brainstorm and Know/Need to Know
Day 2	Research: soil regions and native species plants
Day 3	Lab: Soil Columns Learning Target: Soil consists of weathered rocks and decomposed organic material from dead plants, animals and bacteria.
Day 4	Reading: Soil Composition Learning Target: Soils are often found in layers, each layer made up of a different chemical composition and texture.
Day 5	Lab: Describing soil scientifically Learning Target: Soils have compositions that can be described with color, consistence, and texture.
Day 6	Research: What kind of soils do native species need?
Day 7	Activity: Nutrients In Soil Learning Target: Soils vary in chemical composition, such as in the amount of nitrogen, phosphorus and potassium they contain.
Day 8	Lab: Organic Matter Test Learning Target: Soils vary in composition, such as in the amount of organic matter that they contain.
Day 9	Lab: Soil Testing (Nutrients) Learning Target: Scientists conduct experiments, make accurate measurements, and compare results to construct scientific knowledge.
Day 10	Analyze multiple class data, write recommendations for Coach Justiss. Set up groups for Presentation of Learning

STEP 1: TWO-WEEK PROJECT PLAN TEMPLATE THE PAST FOUNDATION

NAME(s): Beal SUBJECT(s): Social Studies

Problem or Issue Students Will Examine:	Learners will remove Invasive Species in the Cuyahoga Valley National Park.
Student Activities Throughout the Project:	Cost Benifit anlysis Analyze how trade routes transfer invasives
Expected Timeline of Project:	2 weeks
Materials Needed:	Internet access Maps
Formative Assessment Ideas Used Throughout the Project:	Socratic Questioning Exit tickets Bell quizes Quick writes Polls
Product Ideas:	Invasive transfer maps Create Invasive Species governing laws/ bills

STEP 2: TWO-WEEK PROJECT PLAN TEMPLATE THE PAST FOUNDATION

NAME(s): Beal SUBJECT(s): Remove Invasive Species

Day 1	How did Invasive Species get here
Day 2	Trade Routes
Day 3	How trade routes could transport plant
Day 4	Geography of area where Invasive is Native
Day 5	Geography of area where Invasive is plant has now become invasive
Day 6	Benefits of the plant (i.e. fragrance, privacy etc.)
Day 7	Cost & Benefits of removal methods
Day 8	Determine best removal method
Day 9	Government – laws concerning import & export of plant
Day 10	Create a law to govern Invasive Species removal

STEP 1: TWO-WEEK PROJECT PLAN TEMPLATE THE PAST FOUNDATION

NAME(s): Justiss SUBJECT(s): Science

Problem or Issue Students Will Examine:	Learners will remove Invasive Species in the Cuyahoga Valley National Park.
Student Activities Throughout the Project:	Research Invasive Species. Remove Invasive Species in the National Parks. Research ways to remove Invasive Species.
Expected Timeline of Project:	8 weeks
Materials Needed:	Internet access Buses Cuyahoga Valley Park Ranger Acess to Cuyahoga Valley National Park
Formative Assessment Ideas Used Throughout the Project:	Socratic Questioning Exit tickets Bell quizes Quick writes Polls
Product Ideas:	Lead family members in Invasive Species removal. Invasive Removal methods Presentation. Community awareness on Invasive pamhlets Planting Native Species

STEP 2: TWO-WEEK PROJECT PLAN TEMPLATE THE PAST FOUNDATION

NAME(s): Justiss SUBJECT(s): Remove Invasive Species

DAY 1	Till existing soil
DAY 2	Test soil
DAY 3	Research best types of Native Plants for soil type
DAY 4	Research best types of Native Plants for soil type
DAY 5	Gather native seedlings for planting
DAY 6	Plant new Native seedlings
DAY 7	Water Native Plants
DAY 8	Remove weeds from native plants
DAY 9	Harvest Native plants
DAY 10	Plant Native plants at neighboring businesses

STEP 1: TWO-WEEK PROJECT PLAN TEMPLATE THE PAST FOUNDATION

NAME(s): Demangeont SUBJECT(s): Math

Problem or Issue Students Will Examine:	Learners will remove Invasive Species in the Cuyahoga Valley National Park.
Student Activities Throughout the Project:	Population studies Perimeter Area Statistics Analysis
Expected Timeline of Project:	2 weeks
Materials Needed:	Internet access Connected Math Data Graph Paper
Formative Assessment Ideas Used Throughout the Project:	Socratic Questioning Exit tickets Bell quizes Quick writes Polls
Product Ideas:	Population study analysis Population Maps

STEP 2: TWO-WEEK PROJECT PLAN TEMPLATE THE PAST FOUNDATION

NAME(s): Demangeont SUBJECT(s): Math

DAY 1	Field Study Data analysis
DAY 2	Population studies
DAY 3	Graph results of population study
DAY 4	Find the perimeter Autumn Olive's Present location
DAY 5	Find the volume Autumn Olive's Present location
DAY 6	Find the area of the Autumn Olive's Present location
DAY 7	Projected population in 5 & 10 years without invention
DAY 8	Population study of animals effected by increase in invasive species
DAY 9	Compare and contrast % of forest covered before & after removal
DAY 10	Stretch & shrink the % of the forest by 10 20 and 30%

QUARTER: 1 TEACHER(s): Starling k-8 SUBJECT(s): all

PROBLEM / ISSUE: What is an outdoor innovation lab and how is it used?

PROJECT:	PROJECT:	PROJECT:	PROJECT:
Habitat area-Design a habitat area for a back yard and add to our habitat area. building bat houses, bird feeders, toad homes, and planting native plants,	Physics station- Design and build an object that can fly through space. (Outcomes of distance, hitting a target, or protecting contents will vary based on grade.)	Seating area-design/create seating solution for our outdoor classroom seating area.	Produce student work to be displayed on the EIS (Equal Interval Station) and in the seeting area.
9/2 - 9/5 *DATE/WEEK*	9/15 - 9/19 *DATE/WEEK*	9/29 - 10/3 *DATE/WEEK*	10/13 - 10/17 *DATE/WEEK*
Science- learning about the needs of organisms Social studies- learning about ways that humans affect their environment Math- measuring and geometry English/language arts- research native species	Science- initial build and testing of flying object Social studies-learn about international trade-sharing of cultural ideas Math - measuring ELA- Main idea of readings focused on flight	Science- learn about the physical properties of various building materials that could be used for the seats Social studies- learn about "furniture" from different cultures and times Math- volume (Dirt to fill planters, mulch at a 5" depth)	Teachers use EIS as a teaching tool: Science - review steps of Scientific method Social studies - Time line Math - numerical order, place value, number line ELA: sequence of events in a story Students begin designing their own work to display on EIS
9/8 - 9/12 *DATE/WEEK*	9/22 - 9/26 *DATE/WEEK*	10/6 - 10/10 *DATE/WEEK*	10/20 - 10/24 *DATE/WEEK*
Science-building homes and feeders Social studies- writing persuasive letters about protecting natural habitats Math- create "blueprint "plan for a habitat area ELA- Write an informative speech about native species of	Science- rebuild and final test of flying object Social studies- create a time line for the history of flight Math- create graph of flight results ELA- present speech about design process of the flying object	Science- Build seats Social studies- create a slide show or comic strip showing your group's choice, building of and using the new seating area Math- cost analysis for building different types of seating ELA- write a set of directions so someone else could reproduce	Final decisions and preparations are made for students to share what they have been learning with the use of outdoor lab. Work will be displayed on EIS for an Open House type sharing with other students, parents, and community.

TPBL PROJECT SNAPSHOT

THE PAST FOUNDATION

INSTRUCTOR: All

GRADE LEVEL: All

SUBJECT: All

OTHER TEACHERS/SUBJECTS: Encore

START DATE: 9/15

PRESENTATION: 9/26

Theme: Physics: Motion and force

Overarching Question: How can we control and measure the flight

Problem / Issue: Will vary depending on grade level and subject

PROJECT OVERVIEW

PROJECT *Activities:*

*Design, build, and launch an object to travel the furthest distance, hit a target, stay in the air the longest, protect its contents, etc...
*Measure distances and times
*Brainstorm and research how flying objects can benefit society
*Focused readings
*Various writings; journals, lab reports, graphs

This project will be done by multiple grades so examples of various standards are given.

PRODUCTS *Evidence of Learning:*

-Flying objects
-Graphs
-Charts
-Speeches
-Lab reports
-Journals
-Bulletin board

ALIGNED STANDARDS

Science

PS8.1- forces act between objects:touchin

PS8.2- forces have magnitude and directio

PS2.1- Forces change an object's motion

Social studies- 6.7-people, products, ideas move from one place to another

Math

K.MD.2- compare measurements of two ob

M6.EE.9- analyze quantitative relationship between "de" and independent variable

ELA-RI.5.2-determine main idea

ELA-SL.7.4-present claims and findings

FORMATIVE ASSESSMENT TOOLS →	CHOOSE SHORT CYCLE ASSESSMENT →	SHORT CYCLE ASSESSMENT

- ☐ Exit tickets
- ☐ Think, Pair, and Share
- ☐ Concept or Web Maps
- ☐ One Sentence Summary
- ☐ Observation
- ☐ Turn to Your Partner
- ☐ Journal Entry
- ☐ Hand Signals
- ☐ Defend / Justify Answer
- ☐ Other: lab notes
- ☐ Other: practice graphs
- ☐ Other: practice timelines
- ☐ Other: _____

Fold Here

VOCABULARY
Tests basic understanding of a concept.

COMPARE & CONTRAST
Assesses real-world application of knowledge.

EXTENDED ANSWER
Requires synthesis of knowledge in multiple applications.

Students will present their learning to a group in a variety of ways including speeches, graphs, timelines.

Students will take a test that is similar in style to standardized tests.

STEP 1: TWO-WEEK PROJECT PLAN TEMPLATE THE PAST FOUNDATION

NAME(s): Teachers SUBJECT(s): Science, Social Studies, Math,ELA

Problem or Issue Students Will Examine:	Science- How can we control and measure the flight of an object? How can I affect the distance an object travels within project constraints? Social Studies- How can controlling the flight of an object benefit society? How has technology developed over time? Math- How can I graph the relationship between the independent and dependent
Student Activities Throughout the Project:	Science- *Build flying objects and test them. *Compare flights of objects based on size, weight, shape. *Use online labs to complete multiple trials quickly. Social Studies- *Researching how object travel to get to you and history of flight. *Create a timeline Math- *Measure distance and time objects traveled * Measure size and weight of objects. *Create graphs to show information. ELA- *Focused readings on history of flight and trade *student speeches
Expected Timeline of Project:	2 weeks
Materials Needed:	Science- surgical tubing, water balloons, foil, styrofoam, sponges, construction paper, measuring tapes, paper, journals Social Studies- Collection of books borrowed from library, computers or laptops. Math- Stopwatches, rulers, graph paper, meter sticks, measuring tapes, scales ELA- Library books, computers, grade leveled texts to support research, journals
Formative Assessment Ideas Used Throughout the Project:	Science- exit tickets, lab notes, journal entries Social Studies- exit tickets, homework assignments, practice timelines, maps Math- exit tickets, practice graphs ELA- Exit tickets, journal writings, one sentence summaries, concept maps
Product Ideas:	Science- an object that can travel through space- Presentation Social Studies- timeline- Presentation Math- graphs- Presentation ELA- speech- Presentation

STEP 2: TWO-WEEK PROJECT PLAN TEMPLATE THE PAST FOUNDATION

NAME(s): Teachers SUBJECT(s): Science, Social Studies, Math, ELA

Day 1	S- Introduce vocabulary and background information about forces and motion M- Introduce measurement SS-Introduce trade and sharing of cultural resources including ideas ELA-Introduce presentation skills
Day 2	S- Launch predetermined objects so students can make observations and predictions M-measure launched objects (work with science in physics station area) SS- Basic geography skills and knowledge ELA- Practice determining main idea
Day 3	S-Brainstorm ideas for object based on launching experiment and constraints of problem M- Introduce graphing SS-Discuss practical uses of flight (use outdoor seating area)
Day 4	S- Design blueprint for flying object M- Practice measuring SS-research history of flight ELA-Focused reading on history of flight- one sentence summaries
Day 5	S- Build object and initial indoor testing M-practice graphing SS-research history of flight- ELA-focused reading on history of flight- one sentence summaries
Day 6	S- Launch objects- (physics station) M- measure objects SS-introduce timeline ELA- outline draft of speech for presentation- fill in details as they become available
Day 7	S-modify object based on what was learned from test M-graph results of launch from day 6 SS-Practice timelines (using EIS) ELA- practice presenting the speech
Day 8	S-Launch modified objects-(Physics station) M- Measure launched objects SS-develop timeline for flight ELA-modify speech
Day 9	S- Prepare for presentation M- Prepare for presentation SS- Prepare for presentation ELA- Prepare for presentation
Day 10	S- Present M-Present SS-Present ELA-Present

QUARTER: TEACHER(s): Knerem, Hinz, Jones, Math teache SUBJECT(s): All

PROBLEM / ISSUE: How does our availability to food affect our lives? (Food Desert) Design and create the most cost efficient and nutrient rich meal for a local soup kitchen			
PROJECT: Do we live in a food desert?	PROJECT: What problems do food deserts cause?	PROJECT: What does a healthy diet look like?	PROJECT:
this week DATE/WEEK	DATE/WEEK	DATE/WEEK	DATE/WEEK
Define food desert Students will research food locations in their community.	Students will learn how important it was to ration goods during the war. Students will research the different types of foods used in Victory Gardens	Students will germinate seeds based on social studies. Students will identify the factor that is responsible for creating the most biomass in photosynthesis.	(From above) Project: How do we overcome a food desert? Students will analyze the compilations of short stories found in the book Seedfolk and apply it to our community. Students will track their own daily consumption through food
DATE/WEEK	DATE/WEEK	DATE/WEEK	DATE/WEEK
Students will complete mapping and comparison of food availability of urban vs. suburban areas. Their map will include where grocery stores, fast food chains, and gas stations are in relation to their home and school.	Students will budget out how much buying seeds will cost and develop a plan for growing own gardens.	Students will plant and maintain the victory garden Students will investigate manipulations of variables to assure maximum yield	Students will design and prepare meal for final presentations for or at local soup kitchen.

TPBL PROJECT SNAPSHOT

THE PAST FOUNDATION

INSTRUCTOR:

GRADE LEVEL: 10th

SUBJECT: Math - II

OTHER TEACHERS/SUBJECTS:

START DATE:

PRESENTATION:

Theme: Food Desert

Overarching Question: Do we live in a food desert?

Problem / Issue: Food Desert

PROJECT OVERVIEW

PROJECT *Activities:*

Do we live in a food desert?-
Students will collect data off local food suppliers from their community and compare to a suburban area.

PRODUCTS *Evidence of Learning:*

Students will complete mapping and comparison of food availability of urban vs. suburban areas.

Students will create a presentation to justify their findings.

ALIGNED STANDARDS

Geometry GSRT 1

Geometry G-SRT 2

Geometry G-SRT 3

Geometry- G-GMD 1

FORMATIVE ASSESSMENT TOOLS	CHOOSE SHORT CYCLE ASSESSMENT	SHORT CYCLE ASSESSMENT

- ☐ Exit tickets
- ☐ Think, Pair, and Share
- ☐ Concept or Web Maps
- ☐ One Sentence Summary
- ☐ Observation
- ☐ Turn to Your Partner
- ☐ Journal Entry
- ☐ Hand Signals
- ☐ Defend / Justify Answer
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Fold Here

VOCABULARY
Tests basic understanding of a concept.

COMPARE & CONTRAST
Assesses real-world application of knowledge.

EXTENDED ANSWER
Requires synthesis of knowledge in multiple applications.

Presentation

post bi-weekly short cycle assessment ext

TPBL PROJECT SNAPSHOT

THE PAST FOUNDATION

INSTRUCTOR:

GRADE LEVEL: 10th

SUBJECT: Biology

OTHER TEACHERS/SUBJECTS:

START DATE:

PRESENTATION:

Theme: Food Desert

Overarching Question: What does a healthy diet look like?

Problem / Issue: Food Desert

PROJECT OVERVIEW

PROJECT *Activities:*

What does a healthy diet look like?
Student created community garden using SOIL based on:
Food availability from Math project
Types of food for victory garden from Social Studies project
Food grown will support English project

PRODUCTS *Evidence of Learning:*

Students will conduct research to identify factor for creating the most biomass to grow seeds.

Students will germinate seeds, plant and maintain the community garden

Students will keep food journals.

ALIGNED STANDARDS

Ecosystem 2

Ecosystem 4

Ecosystem 6

Ecosystem 8

Ecosystem 9

FORMATIVE ASSESSMENT TOOLS	CHOOSE SHORT CYCLE ASSESSMENT	SHORT CYCLE ASSESSMENT

- ☐ Exit tickets
- ☐ Think, Pair, and Share
- ☐ Concept or Web Maps
- ☐ One Sentence Summary
- ☐ Observation
- ☐ Turn to Your Partner
- ☐ Journal Entry
- ☐ Hand Signals
- ☐ Defend / Justify Answer
- ☐ Other: Research
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Fold Here

VOCABULARY
Tests basic understanding of a concept.

COMPARE & CONTRAST
Assesses real-world application of knowledge.

EXTENDED ANSWER
Requires synthesis of knowledge in multiple applications.

Inquiry Research presentation

post short cycle assessment

Garden maintenance

TPBL PROJECT SNAPSHOT

THE PAST FOUNDATION

INSTRUCTOR:

GRADE LEVEL: 10th

SUBJECT: English

OTHER TEACHERS/SUBJECTS:

START DATE:

PRESENTATION:

Theme: Food Desert

Overarching Question: How do we over come a food desert? (To

Problem / Issue: Food Desert

PROJECT OVERVIEW

PROJECT *Activities:*

Documentation of community garden, creation of soup kitchen meal

PRODUCTS *Evidence of Learning:*

Student Paper- Analysis of seedfolks, and documentation of our own community garden

Students will keep food journals.

Student menu and soup kitchen meal

ALIGNED STANDARDS

Fiction-reading

Writing portfolio: Informational and exposit

FORMATIVE ASSESSMENT TOOLS	CHOOSE SHORT CYCLE ASSESSMENT	SHORT CYCLE ASSESSMENT

- ☐ Exit tickets
- ☐ Think, Pair, and Share
- ☐ Concept or Web Maps
- ☐ One Sentence Summary
- ☐ Observation
- ☐ Turn to Your Partner
- ☐ Journal Entry
- ☐ Hand Signals
- ☐ Defend / Justify Answer
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Fold Here

VOCABULARY
Tests basic understanding of a concept.

COMPARE & CONTRAST
Assesses real-world application of knowledge.

EXTENDED ANSWER
Requires synthesis of knowledge in multiple applications.

Portfolio

compare and contrast - fiction vs. non-ficti

TPBL PROJECT SNAPSHOT

THE PAST FOUNDATION

INSTRUCTOR:

GRADE LEVEL: 10th

SUBJECT: Social Studies

OTHER TEACHERS/SUBJECTS:

START DATE:

PRESENTATION:

Theme: Food Desert

Overarching Question: What problems do food deserts cause?

Problem / Issue: Food Desert

PROJECT OVERVIEW

PROJECT *Activities:*

What problems do food deserts cause?
Food and goods rationing during war time
research types of foods grown in a victory garden.
budgeting of cost of seed buying for community (victory) garden for SOIL

PRODUCTS *Evidence of Learning:*

Research presentation for food rationing and victory gardens during wars.

Budget of seeds for SOIL garden.

ALIGNED STANDARDS

CS20

CS21

CS22

FORMATIVE ASSESSMENT TOOLS →	CHOOSE SHORT CYCLE ASSESSMENT →	SHORT CYCLE ASSESSMENT

- ☐ Exit tickets
- ☐ Think, Pair, and Share
- ☐ Concept or Web Maps
- ☐ One Sentence Summary
- ☐ Observation
- ☐ Turn to Your Partner
- ☐ Journal Entry
- ☐ Hand Signals
- ☐ Defend / Justify Answer
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Fold Here

VOCABULARY
Tests basic understanding of a concept.

COMPARE & CONTRAST
Assesses real-world application of knowledge.

EXTENDED ANSWER
Requires synthesis of knowledge in multiple applications.

Research presentation

WWII Short cycle assessment with extend

STEP 1: TWO-WEEK PROJECT PLAN TEMPLATE THE PAST FOUNDATION

NAME(s): Hinz SUBJECT(s): Biology

Problem or Issue Students Will Examine:	Food Desert
Student Activities Throughout the Project:	Photosynthesis Inquiry research project Garden
Expected Timeline of Project:	2 weeks
Materials Needed:	Plants (grasses or other fast growing plants) cups or germination trays Pippet for water water plastic bags Seeds from Social studies research project from Victory Gardens
Formative Assessment Ideas Used Throughout the Project:	Research presentations and justification (Compare and contrast variables)
Product Ideas:	Lab report Garden (start)

STEP 2: TWO-WEEK PROJECT PLAN TEMPLATE THE PAST FOUNDATION

NAME(s): Hinz SUBJECT(s): Biology

DAY 1	What is photosynthesis-Introduction
DAY 2	What is biomass activity
DAY 3	Lab introduction- What factor is responsible for generating the most biomass in plants? Written methodology
DAY 4	Set up inquiry lab based on individual group's methodology and hypothesis
DAY 5	Record data Photosynthesis part 1- light reaction
DAY 6	Record data Photosynthesis part 2- Dark reaction
DAY 7	Record data Photosynthesis Part 3- C4 plants
DAY 8	Record data/ Analyse data Stat to create presentation
DAY 9	Complete conclusion and justification. Complete poster
DAY 10	Poster Presentation

STEP 1: TWO-WEEK PROJECT PLAN TEMPLATE THE PAST FOUNDATION

NAME(s): SUBJECT(s): Math

Problem or Issue Students Will Examine:	Do we live in a food desert?
Student Activities Throughout the Project:	Students will research and map local food resources Students will compare food resources in an urban community to a suburban community
Expected Timeline of Project:	2 weeks
Materials Needed:	permission slips graph paper rulers color pencils calculators computer
Formative Assessment Ideas Used Throughout the Project:	Daily- exit tickets Weekly checks- Defend/justify
Product Ideas:	2 maps of food resources: - west side - suburban area presentation

STEP 2: TWO-WEEK PROJECT PLAN TEMPLATE THE PAST FOUNDATION

NAME(s): SUBJECT(s): Math

Day 1	Introduction of project: Brain storm - Where do you go to get your food in our community? List of resources
Day 2	Methodology- Students will create and design methodology within their groups and classes on how to collect data.
Day 3	Field Research day- Students will be assigned areas around the school and wil investigate and locate food resources
Day 4	Students will create a map of the community
Day 5	Students will plot the food resource points on the generated map
Day 6	Students will finish plotting maps
Day 7	Students will research selected areas from a suburban area, students will work on presentations
Day 8	Students will compare and analysis data collected, students will work on presentations
Day 9	Students will complete presentations and findings.
Day 10	Students will present and justify findings

BACKMAP

THE PAST FOUNDATION

QUARTER: 1st Semseter TEACHER(s): Stutz/Sowards SUBJECT(s): All Subjects

PROBLEM / ISSUE: How do birds meet basic needs for survival?

PROJECT: What do we see when we observe birds? How do a birds physical traits & behaviors help it meet its basic needs for survival.	PROJECT: Why are birds beaks so different?	PROJECT: How do bird's wing shape and structure help it fly?	PROJECT: How do birds migrate?
Week 1 DATE/WEEK	Week 3 DATE/WEEK	Week 5 DATE/WEEK	Week 7 DATE/WEEK
Students construct bird feeder of their own through scale modeling & Gateway to Technology. Choose birds in Ohio & do report on type of bird. What are a bird's physical adaptations?	Discuss how birds beaks are like simple machines. Activity "gumball". Beaks as levers. Create a summary chart to collect data on amount of foow each beak could pick up.	Discuss how a bird's wing is similar to that of an airplane. Discuss the lift, drag & gravity. Introductory activity-Lift Give students 5 different bird wings. Students hypothesize & use the design cycle to determine which type of wing.	Discuss magnetism & how it is the force that may attract (pull) or repel (push) objects. Introductory: Magnet attraction -Magnetic migration -Using the maps of Ohio made by the PAST Foundation
Week 2 DATE/WEEK	Week 4 DATE/WEEK	Week 6 DATE/WEEK	Week 8 DATE/WEEK
Building Local Field guide Portfolio -Bird's Eye Story -Silly Bird descriptions -Use Brid Feeders -Local Field Guides	Continue Local Field Guide Portfolio -discuss why birds have certain beaks & ways to survive. -Bird feeders -Graph results -"Bird Binoculars" -Bird Bop	Continue Local Field Guide Portfolio -Art/Math-Paint wings-show wingspan size & shape & discuss jobs and importance of wings -Have students complete scientific drawings of their feathers. -Make drawings fo silohettes of the feathers.	Continue & conclude Local Field Guide Portfolio Include in Portfolio -(culminating Activity) -As students worked on being field guides welcome parents to experience the "Life of a Bird & have students walk through the process explaining the unit to parents or community members. PPT, animoto, prezi.

TPBL PROJECT SNAPSHOT

THE PAST FOUNDATION

INSTRUCTOR: WestmoorStaff GRADE LEVEL: 6-8 OTHER TEACHERS/SUBJECTS: START DATE: Fall

SUBJECT: All PRESENTATION:

Theme: Birds

Overarching Question: How do birds meet basic needs for survival

Problem / Issue: What do we see when we observe birds? Physical traits, wingspan, beaks, migration

PROJECT OVERVIEW

PROJECT *Activities:*

-Observations -making portfolios (local field guides)
-constructing bird houses/bird feeders -Informational text on bird in Ohio
-Story -Descriptive language of birds -beaks as levers/summary chart
-graphing food color eaten most by birds -bird binoculars -bird bop
-"Lift" activity -bird wings observation & design -paint wingspans
-silhouette of feathers -scientific drawings -magnet activity
-magnetic migration -use map of ohio Extension-make U.S. map
*culminating activity-podcast, newcast, prezi, animoto

PRODUCTS *Evidence of Learning:*

Included in portfolio
-research/graphic orgnaizer birdhouse/bird feeder
-informational report -probability graphs -design cycle labs
-gameboard (game) -birds eye view story -silly bird descriptions
-summary chart (beaks) -scientific drawing of wings
-"how to make" bird binoculars -"how to do 'bird bop"
-silouette of feathers -argument-which wing is best to soar, hover, glide, etc.
*culminating activity-"The Life of a Bird"
can be done in: podcast, newscast, prezi, PPT, tri-fold, animoto

ALIGNED STANDARDS

(MATH) analyze proportional relationships

and use them to solve real world problems

7ws-the number system 6.7.8G-

geometry-draw, construct, & describe

geometrical figures -scale drawings, real

SCIENCE-cycles of matter & flow of energy
order
& organization science inquiry & application

S.S. spatial thinking & skills places and regions
civic participation & skills geography

L.A. grade 6-7 argument writing

FORMATIVE ASSESSMENT TOOLS	CHOOSE SHORT CYCLE ASSESSMENT	SHORT CYCLE ASSESSMENT
☐ Exit tickets ☐ Think, Pair, and Share ☐ Concept or Web Maps ☐ One Sentence Summary ☐ Observation ☐ Turn to Your Partner ☐ Journal Entry ☐ Hand Signals ☐ Defend / Justify Answer ☐ Other: rubrics ☐ Other: debates ☐ Other: podcasts ☐ Other: portfolios	**VOCABULARY** Tests basic understanding of a concept. **COMPARE & CONTRAST** Assesses real-world application of knowledge. **EXTENDED ANSWER** Requires synthesis of knowledge in multiple applications.	-Use lawn scrabble to practice vocab -rubrics -questioning -discussions -observations -exit/admit tickets -journal/learning logs -graphic organizers -peer/self assessments -graphs -construction drawing of birdhouse, wingspan -feather silhouette -design cycle labs -scientific inquiry

Fold Here

STEP 1: TWO-WEEK PROJECT PLAN TEMPLATE

THE PAST FOUNDATION

NAME(s): Stutz/Sowards

SUBJECT(s): All subjects

Problem or Issue Students Will Examine:	What do we see when we observe birds? How do a birds physical traits and behaviors help meet its basic needs for survival?
Student Activities Throughout the Project:	-Construct birdhouses/bird feeders -Watch videos & unite birds physical adaptations Some activities may extend 2-week period -Bird's eye story -Silly bird descriptions -Using bird feeders -Local field guides-->Make bird binoculars -Bird bop -Beaks as levers
Expected Timeline of Project:	One semester
Materials Needed:	-Bird feeder -Birdseed -Journal for birdwatching -Wood -Posters, markers, crayons, construction paper -Graph paper -chart paper -Card set of birds -Recycle objects -Pinecones, peanut butter, seed (feeder)
Formative Assessment Ideas Used Throughout the Project:	-Observations -questioning -discussion -exit/admit tickets -philosophical chairs -graphic ogranizers -kinesthetic assessments -visual representations -peer/self assessments -practice presentations -writing field guides -powerpoint -podcasts, news reports
Product Ideas:	-Birdhouses -Bird feeders -Bird's eye story -Silly bird descriptions -Beaks as levers -Probability graphs -Bird binoculars -Bird bop -Begin local field guides presentations

STEP 2: TWO-WEEK PROJECT PLAN TEMPLATE THE PAST FOUNDATION

NAME(s): Stutz/Sowards SUBJECT(s): All subjects

DAY 1	Introduction to project -discuss birds, physical traits, behaviors -begin to observe & discuss needs for survival -study birds in Ohio & begin to make bird feeders & designs for bird houses (watch videos)
DAY 2	-continue research on birds physical adaptations & behaviors, researching birdhouses, bird feeders & birds in Ohio -begin looking at bird beaks as levers or wedges
DAY 3	Intro activity: use design cycle -Students will use several objects to discover how basic tools are used in a similar way to beaks -create summary chart on data collected on amount of food each beak could pick up
DAY 4	Continue research on birds/bird feeders/birdhouses -Try to begin model drawings on bird houses in Gateway to Technology -Begin discussing feathers (lift, drag, gravity) and how there are different types of feathers for different jobs
DAY 5	Intro use design cycle to show how the principle of lift works in bird flight
DAY 6	Give students 3 different bird wings -students hypothesize & use the design cycle to determine which type of wing is likely to perform the best at soaring, hovering, gliding & rapid flight
DAY 7	students will then begin several projects simultaneously that will take several weeks to finish
DAY 8	start scientific drawings of feathers/wings on brick wall -use these to bring to scale on 1 in. grid paper -silhouette drawings of the feather -migration of birds in Ohio
DAY 9	students continue to work on birdhouses (Gateway to Technology) -Students begin making up local field guide. In guides they will have Birdle-eye story, silly bird descriptions
DAY 10	Bird feeders, bird binoculars, bird bop & experience "Life as a bird" in different projects (ex. podcasts, newscasts, powerpoint)

OPPORTUNITIES & CHALLENGES

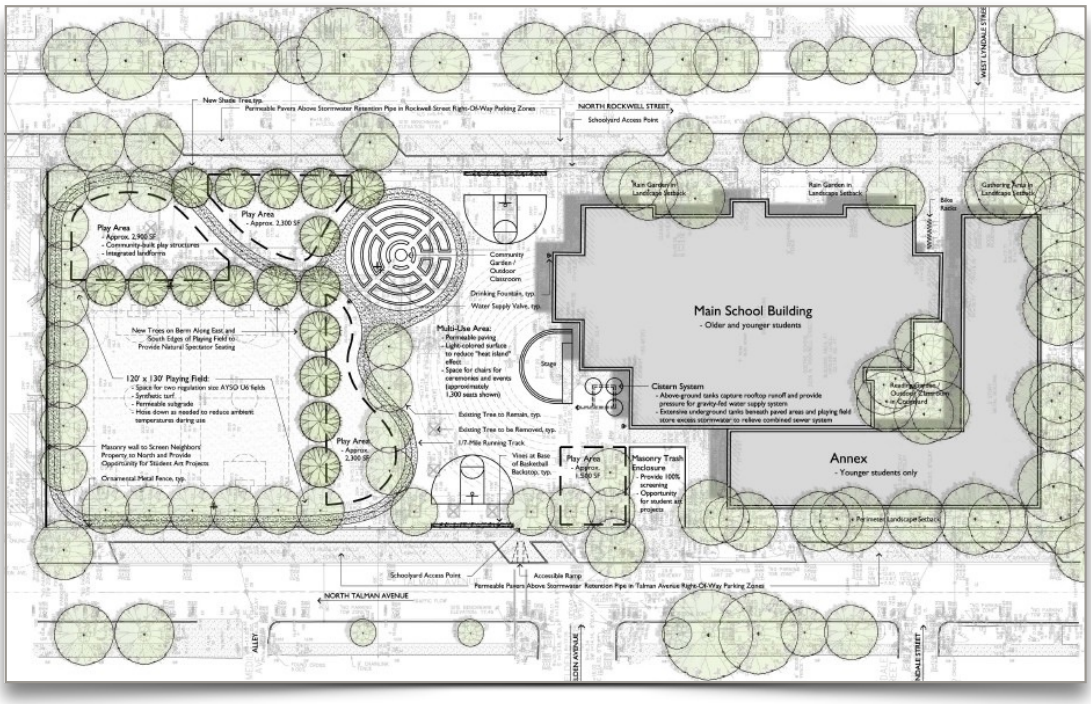
CURRICULUM INTEGRATION

PROFESSIONAL DEVELOPMENT

COMMITTEE STRUCTURE

PLANNING TIMELINE

PLANNING PROCESS



Preparing to Use the Outdoors

This session will focus on the critical items that need to be considered early in the dreamstorming phase, even before any nails are pounded or seeds planted. Although over planning can drag down a project and drain enthusiasm, most problems occur because there has not been enough preliminary thought given to a variety of important elements. Whether you are a teacher who will be the one and only on your staff to try outdoor learning or you are the catalyst who is enthusiastically bringing together an entire staff to use the school grounds, there are common issues, concerns, and cautions that need to be considered.

Site-Specific Opportunities and Challenges

Based on your completed **Site Survey**, develop a working list of FIVE potential site enhancements. You may have your heart set on one idea, but push yourselves to develop Options B, C, D, and E. Think in terms of usage by ALL content areas.

Possible Site Enhancements	Related Site Survey Features
#1	
#2	
#3	
#4	
#5	

Challenge Inventory

For each of the identified possible site enhancements, complete the **Challenge Inventory** to begin anticipating problems before they arise.

Possible Site Enhancement #1-	**Additional Concerns/Challenges**
Location □ Movement from classroom to site □ Distractions to other classrooms □ □ **Time** □ Shortage of time in the school day □ Time needed to maintain enhancements □ □ **Safety** □ Local codes and restrictions □ Health and mobility issues □ Hazard identification (use site survey) □ Inspection of site enhancements/equipment □ □	
Possible Site Enhancement #2 -	**Additional Concerns/Challenges**
Location □ Movement from classroom to site □ Distractions to other classrooms □ □ **Time** □ Shortage of time in the school day □ Time needed to maintain enhancements □ □ **Safety** □ Local codes and restrictions □ Health and mobility issues □ Hazard identification (use site survey) □ Inspection of site enhancements/equipment □ □	

Possible Site Enhancement #3 - **Location** □ Movement from classroom to site □ Distractions to other classrooms □ □ **Time** □ Shortage of time in the school day □ Time needed to maintain enhancements □ □ **Safety** □ Local codes and restrictions □ Health and mobility issues □ Hazard identification (use site survey) □ Inspection of site enhancements/equipment □ □	**Additional Concerns/Challenges**
Possible Site Enhancement #4 - **Location** □ Movement from classroom to site □ Distractions to other classrooms □ □ **Time** □ Shortage of time in the school day □ Time needed to maintain enhancements □ □ **Safety** □ Local codes and restrictions □ Health and mobility issues □ Hazard identification (use site survey) □ Inspection of site enhancements/equipment □ □	**Additional Concerns/Challenges**

Possible Site Enhancement #5 -	**Additional Concerns/Challenges**
Location □ Movement from classroom to site □ Distractions to other classrooms □ □ **Time** □ Shortage of time in the school day □ Time needed to maintain enhancements □ □ **Safety** □ Local codes and restrictions □ Health and mobility issues □ Hazard identification (use site survey) □ Inspection of site enhancements/equipment □ □	

Curriculum Integration

As a part of this process, your team needs to develop a clear connection of possible site enhancements to the curriculum. Remember, process skills (e.g. observing, classifying, inferring, describing) are cross-disciplinary and easily taught outdoors. Complete the **Curriculum Inventory** for the five possible enhancements you identified.

Possible Site Enhancement #1 -		
Science	Language Arts	Mathematics
Social Studies	World Languages	Fine Arts
Computer Science	Health/Physical Education	Other

Possible Site Enhancement #2 -		
Science	Language Arts	Mathematics
Social Studies	World Languages	Fine Arts
Computer Science	Health/Physical Education	Other

Possible Site Enhancement #3 -		
Science	Language Arts	Mathematics
Social Studies	World Languages	Fine Arts
Computer Science	Health/Physical Education	Other

Possible Site Enhancement #4 -		
Science	Language Arts	Mathematics
Social Studies	World Languages	Fine Arts
Computer Science	Health/Physical Education	Other

Possible Site Enhancement #5 -		
Science	Language Arts	Mathematics
Social Studies	World Languages	Fine Arts
Computer Science	Health/Physical Education	Other

Professional Development

Another key to a successful implementation is forecasting the potential needs of the staff and other participants. For many, this outdoor space will present new and immediate implications for teaching and management. Some common examples are: classroom management, curriculum development, access to resources and working with volunteers. Providing robust and responsive professional development opportunities will smooth out this transition. Take some time to reflect on the distinct needs each enhancement might introduce and the professional development that could support it.

Possible Site Enhancement #1 -

Anticipated Needs and PD Support:

Possible Site Enhancement #2 -

Anticipated Needs and PD Support:

Possible Site Enhancement #3 - Anticipated Needs and PD Support:
Possible Site Enhancement #4 - Anticipated Needs and PD Support:
Possible Site Enhancement #5 - Anticipated Needs and PD Support:

The Planning Committee

Committees can serve a valuable communications function for an outdoor learning initiative. For small projects, such as establishing an herb garden or creating an outdoor teaching/meeting area, a committee of interested teachers, and anyone directly affected by the changes (e.g., custodial staff, administrators, etc.) is sufficient. Larger projects, of course, require representation from all of the potential stakeholders as well as potential sources of help. Planning for large projects seems to work best when the project initiators and the building administrator meet initially to set broad goals for the project and then select who should be invited to join the committee. Committees for large, school-wide projects involving significant site enhancements could include a larger representation. As a team, brainstorm a list of potential participants for your planning committee.

Building Administration	Building/District Maintenance Representative
Teachers (Content & Grade Level Mix)	Student Representatives
Parent Representatives	Possible Community Partners
Appropriate Specialists (naturalists, master gardeners, soil specialists, etc.)	Other Representatives

SOIL | STEM OUTDOOR INNOVATION LABS	
Implementation Site Visit	
School:	
Address:	
Date:	
Committee Members & Community Partners Present:	
1. Have there been any recent modifications to the plans? If so, why?	
2. How has the staff participated in planning and building of the Outdorr Lab?	
3. Adjustments to resource needs:	
4. Additional staff development needs:	
5. Notes and observations:	
6. Attachments:	

Site Visit Log for Cohort 1 and 2 SOILabs
Sites listed by Priority/Need

School Name	Date of Site Visit	Problem Solving/Comments/Next Steps/Technical Assistance Provided	Photos and Documentation for Site
Westmoor MS			
Baldwin JHS			
eSTEM HS			
Metro HS & MS			
Walnut Twnshp HS			
Lancaster HS			
Fairfield Union MS			
Fairfield Union HS			
Federal Hocking MS			
Federal Hocking HS			
Starling MS			
National Inventors Hall of Fame MS			
Biomed HS			
-Cohort 1			
-Cohort 2			

PAST InnovationLab
access through education

SOIL Lab Usage Sheet

School Name: _____
Date:_____

Description of how SOILab is used currently:

Description of plan to increase usage over time:

Log of how lab is being used and managing usage over time:

Month	Description of SOILab usage	Approximate Student Numbers	Plan to increase usage	Delta from last month's usage
March 2015				
April 2015				
May 2015				
June 2015				
July 2015				
August 2015				
September 2015 and beyond				

PAST InnovationLab
access through education

Check off Sheet for Ordering with Cohort 1 & 2

School Name	Alternative Vendors were Looked at by Jim if any items seem applicable	School and Jim D. has checked to include Shipping Costs	School and Jim D. has included Principal on any/all communication regarding items the SOILab	Sign off by Jim D. to send Pam the final excel sheet	Date Excel sheet is sent to Pam for ordering.

Communication Log for Cohort 1 and 2 SOILabs

School Name	Date of communication	Point of Contact	Comments/next steps

GROWING SOIL 3rd Quarter Report
FORMATIVE EVALUATION

The Knowledge Capture (KC) Program conducted evaluation of the third quarter of implementation for the Growing SOIL Project in completing the following work. This report includes activities from January 30 through April 17, 2015. The report addresses work completed for Cohort 2 (6 Districts) during the 3rd quarter of the grant period. A chronology for all work conducted and supporting documents are presented in the Appendix of this report.

Cohort 2 orientation and official launch of the implementation phase of the Growing SOIL program was held on January 9-10, 2015. The Knowledge Capture team conducted both structured observation over the two-day planning workshop, as well as a pre-planning survey. The bullet point report of the observation, and the full survey analysis were presented in the Mid-Year Grant report issued on January 30, 2015.

The discussion that follows focuses on observation of three planning workshop days held on February 20, and March 20-21. These workshops were structured to support design of the outdoor labs for the Cohort 2 teams and were lead by the Growing SOIL Project Lead, Beth Witte, with Herb Broda, Mathew Broda, Jim Dvorsky, Darin Hadinger, and Robin Dungan. The KC team observed these workshops and identified key issues raised by the team participants over the course of the three days of collaborative work. Additionally, the focus of the discussion that follows will compare pre-planning survey responses from January (n=13), with issues identified during the discussions that occurred during the planning workshops held in February and March of 2015.

Engaging School Staff

In the pre-planning survey, teachers identified challenges they anticipated in implementing their outdoor lab plan. Nine teachers said that time management would likely present a challenge, followed by fostering teacher buy-in among their colleagues (n=6).

At the February workshop, Cohort 2 teams shared ideas for activities that some had had organized to create support and engagement among the staff at their schools. These include:

- Creating sub-committees with group leaders being assigned tasks
- Creating meeting areas for staff to efficiently work on their outdoor labs
- Using Google Docs® to communicate progress with the implementation plan, generate staff buy-in, and offer a convenient way for staff involvement

With these ideas in place some districts are seeing growing interest from their colleagues, which they consider essential to sustaining the project over time. Additionally, creating sub-committees with assigned tasks for committee members to undertake also helps to organize an implementation strategy that allows teachers to work collaboratively and potentially increase time efficiency by breaking down the plan into separate areas of work that can be carried out by more individuals beyond the Cohort 2 team.

In March, teachers shared recent changes occurring with regard to broader teacher engagement at their school. Some of the changes were associated with different ways Cohort 2 team members organized their approach to staff buy-in including:

- One district Cohort 2 team began with three teachers initially, developed a strategy to reach out to teacher leaders at their school who were viewed as essential to gaining school community support
- Encouraging teacher engagement by offering involved teachers stipends to buy outdoor lab supplies
- Holding staff meetings lead by SOIL Cohort 2 team members to ask for input or identify potential opportunities for collaboration from within the district

Engaging Students

Teachers were asked to describe their three top goals for the STEM outdoor lab in the pre-planning survey (Q7). More than half of the respondents (n=8) cited the top goal was to more effectively engage students in learning, as well as create a learning experience with "real world application," and to achieve student learning in a meaningful way (n=5).

In February, teachers reported that student involvement during the implementation process had become an opportunity to engage students in learning activities related to various aspects of the project implementation process. These include:

- Student involvement to help build aspects of project including such activities as measuring areas for different components of the outdoor lab area
- Potential learning opportunities to work as interns with community partners
- Study physical erosion processes as a project for environmental science classes to solve

In March, teachers shared additional work that students were engaged in that will involve hands-on projects for students. Ideas described by teachers ranged from projects to help with aspects of actually building the outdoor facility to ideas related to how students will use outdoor facilities, including the following:

- Engaging students in building a butterfly garden
- Creating a student project that will involve students in one district building picnic tables and benches for use at a learning center in a different district
- Districts with existing composting project plans will expand their plan through the use of Growing SOIL funds, and engaging students in learning to manage compost bins
- Students will build bat and bird houses that will become part of the lab structure at one outdoor lab
- Involve students in various gardening projects including conducting different types of gardening experiments in raised beds, and learning about native species vs. invasive species
- Involve students who can contribute design skills gained through an industrial tech course

Additionally, districts are able to use funds to provide technology that will present real-time environmental data in the classroom. These ideas involve:

- Plans to set up cameras at nearby nature observation sites in order to remotely access video feed from the classroom
- Placing WIFI weather devices in multiple classrooms
- Potential collaboration across districts for sharing resources such as utilizing a Weather Bug website supported by camera equipment for observation
- District development of networked cameras for access by elementary and middle school classrooms for observation of outdoor areas

The upcoming Hocking College Field School offers an exciting prospect for students to engage in a 5-day outdoor learning program that will focus on ecology, botany, geology, and renewable energy. While initial response from a few districts has been low, including lack of interest by one administrator, the teams report that interest none-the-less is building. Some of the initial work underway to help build interest in student participation reported by teachers in March included the following activities:

- Elementary school students will learn to create and compare maps, and will also create field guides for elementary students for the spring trip
- Conducting a student survey to determine interest in participating in the Hocking field school experience
- Holding parent meetings to create awareness of the opportunity for students

Sustaining Innovation and Outdoor Learning

The Cohort 2 teams have identified a number of approaches that they are developing structured by the Growing SOIL implementation plan that requires several key components. These include:

- Creating outdoor learning curriculum modules
- Growing partnerships and leveraging resources to reduce ongoing costs
- Creating a community-based collaborative enterprise

The teams report very good progress in all three areas, with some district teams reporting the response from the community has been very positive with enthusiastic interest in working with students and their schools to create their outdoor learning facilities.

A major component of the Cohort 2 teamwork requires developing grade-level curriculum for existing courses, including transdisciplinary problem based learning (TPBL) modules. Most of the teachers on the Cohort 2 teams have completed the P3 online course, providing them with an orientation to TPBL. Additionally, the Growing SOIL schools will be offered the opportunity to attend a summer Professional Development "Bootcamp" conducted by the PAST Foundation to continue to build TPBL skills for teachers.

Most of the learning modules being planned by teachers involve student interaction with observation of natural processes that occur seasonally, and experimentation conducted through hands-on projects. One project is considering use of an "outdoor learning cart" to facilitate the outdoor study process for teachers. Curriculum development to this point is advancing with one district taking the approach of creating TPBL modules for K-12 students, integrating content areas as well as building potential use of the outdoor lab for students from elementary to high school.

Where teams are considering collaboration across content areas, increased use of the outdoor lab will also help to ensure sustaining the outdoor facility. Use of the outdoor space by physical education instructors, or by teachers who see the potential benefit for doing classwork outdoors adds to the value and utility of the outdoor space.

In the pre-planning survey, teachers noted that TPBL and outdoor learning will open connections to the community and to real-world learning (n=12). Giving access to the outdoor space to the community at large is also an emerging strategy for sustaining the space and potentially gaining new partners over time. Engaging community organizations in building areas for nature observation, gaining donation of native plants, and creating summer gardening prospects for students and residents are all key to creating vibrant and viable,

outdoor space. One project team has developed a project brochure to convey the value and benefit of the outdoor lab for students as well as for the community and as a result community residents are coming forward to get involved.

Identifying strong partnerships has developed with new insights on mutual benefits of outdoor learning areas that help to support common goals among state agencies and community organizations including AmeriCorps, Soil and Water Conservancy Districts, and nature centers. Locally owned businesses have also stepped forward to provide resources for the outdoor labs, reducing project implementation costs through in-kind donations of building materials, or through volunteer labor.

With the end of the school year approaching, project teams are preparing for the last stages of work that will culminate with presentation of outdoor lab designs, progress on implementation, and strategies for sustaining the lab space and its use by students and community members alike.

Formative Evaluation: 4th Quarter Activities

During the final phase of the Growing SOIL Project for the 2014-15 academic year, formative evaluation will be conducted during the following project activities.

	Type of Evaluation	Date
❖	Observation of C2 Project Site Visits	May (TBD)
❖	C1 Post-Partner Development Survey	June 6
❖	Observation of C1 and C2 Project Presentations	June 6
❖	C2 Middle School Teacher Focus Groups	June 6
❖	C2 High School Teacher Focus Groups	June 11
❖	Growing SOIL Team Debrief	June 12

Knowledge Capture
APPENDIX
Growing SOIL

SOIL Chronology of Knowledge Capture Activities
January 5 to April 15, 2015

Cohort 2 Observations
Growing SOIL Cohort 2 Workshop Bullet Point Report
February 20, 2015

Growing SOIL Cohort 2 Workshop Bullet Point Report
March 20 &21, 2015

Growing SOIL Chronology of Knowledge Capture Activities January 10, 2015 to April 15 2015					
KC Staff	**Cohort**	**Date**	**Event**	**Product**	**Participants**
MSH, MM		2.17.15	Monthly Project Evaluation Meeting	Review with Project Team	Ketal Petal, Beth Witte, Ellen Cahill, Alyssa Reder
MM	2	2.20.15	Cohort 2 Workshop Professional Development Day	BP*	Beth Witte, Meghen Matta, Mathew Broda, Herb Broda, Jim Dvorsky
MSH, MM		3.16.15	Monthly Project Evaluation Meeting	Review with Project Team	Ketal Petal, Beth Witte, Ellen Cahill, Alyssa Reder
MM	2	3.20.15	Cohort 2 Workshop Professional Development Day	BP*	Beth Witte, Meghen Matta, Mathew Broda, Herb Broda, Jim Dvorsky
MM	2	3.21.15	Cohort 2 Workshop Professional Development Day	BP*	Beth Witte, Meghen Matta, Mathew Broda, Herb Broda, Jim Dvorsky
MSH, MM		4.6.15	Monthly Project Evaluation Meeting	Review with Project Team	Ketal Petal, Beth Witte, Ellen Cahill, Alyssa Reder
*Bullet Point Report					

Growing SOIL Cohort 2 Planning PD [BP-AJ/MM]
February 20, 2015

Observation
PAST FOUNDATION Participants: Beth Witte, Meghen Matta, Herb Broda, Mathew Broda, Jim Dvorsky, Robin Dungan, Ellen Cahill, Darin Hadinger

District Participants: Fairfield Union (6), Lancaster (3) [1 Admin], Federal Hocking (2), [2 Admin], Walnut Township (6) [1 Admin]

Student Engagement

- Students are involved to help build aspects of project
    - Helped measure area for student shelter
    - Will have the opportunity to work as interns with community partners
        - Learning opportunity for students
    - Areas evident of erosion can be used for environmental science classes to solve

Community Involvement

- Connected with community partners for involvement in project
    - School Board has investigated Forestry Plan for Land Lab
    - Contacted Soil Water District
        - Can help eradicate invasive species
    - Volunteered organization to renovate covered bridge
    - Created brochure for community to see revitalization
- Many community members have reached out to participate in project

Safety Issues

- Cameras will be placed in courtyard areas

Resources

- Many resources are already onsite or nearby to use for project
    - Shelter house currently on property
        - Easily accessible to the community
    - Retention pond out front
    - Existing deck to place benches
    - Existing weather station
        - Leftover money from this project available to use
    - Raised beds for planting also exist

- Other resources will be obtained from community partners
    - Connection to obtain leftover concrete
    - Currently looking for sandstone seating
    - Working with maintenance onsite for water connection
    - Collaborating with tech to create website camera
    - Looking to obtain a solar powered camera
        - Historical society will help by donating solar panels

Sustaining Involvement & Concerns

- Several activities are taking place to create and keep engagement
    - Sub committees have been created, with group leaders being assigned tasks
    - Created meeting areas to help with time to get to labs
    - Using Google Docs to communicate for staff buy-in and involvement
    - Faculty is strongly interested
- There are several issues in regards to the sustainability of the project
    - Prioritizing tasks and fund management is a big concern
    - Currently looking for community stakeholders who can donate
    - Due to a school closing, staff has not been able to meet
        - Still considering which ideas will work out

Design Team Recommendations

- Things to keep in mind towards project and future events
    - Focus on budget creation and time towards contractors
    - Be mindful of summer construction
        - Will happen in June
        - Plan ahead
    - Funds for project must be allocated by June 1st
    - OPPM – A resource to use towards project management

Growing SOIL Cohort 2 Planning PD [BP-AJ/MM]
February 20, 2015

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Growing Soil Cohort 2 Workshop Observation [BP-RO/MM]
March 20, 2015

Observation

PAST FOUNDATION Participants: Ketal Patel, Beth Witte, Jim Dvorsky, Mathew Broda, Herb Broda, Derin Hadinger, Meghen Matta

Day 1 District Participants: Fairfield Union (7), Federal Hocking (3), Lancaster (5), and Walnut Township (5)

Student Engagement

- A district will have students build butterfly garden
- Another district wants to set up camera at nearby nature observation sites in order to remotely access camera video feed to the classroom
- Students at one district will build picnic tables and benches for a learning center at another district

Community Involvement

- A district held a meeting with an alumnus [business owner] who will donate materials for a butterfly garden
    - Will use sandstone blocks that were a part of one of the town's original buildings for seating

Sustaining Innovation

- Improving developing sites
- Use of design cycle in designing outdoor lab

Curriculum Development

- One district will use their project for continuing development a food production course in their science department and recreation for physical education courses
- Middle school utilizing "exploratory hour" for outdoor space
- One district is utilizing design cycle in SOIL grant development
- Engagement with working with TPBL
    - P3 in the beginning was helpful for introducing modules

Collaboration

- One district offered Industrial Technologies class as a resource:
- Offered to have their students build the districts tables/benches as long as the materials were provided.
- Collaboration between districts on recommendations for resources such as Weather bug website and camera equipment for observation

Challenges

- Cameras and supplies are costly and billed annually
- Principle at one district opposed SOIL field school opportunity
    - The principle claimed there would be no student buy-in before it was presented to the community

Growing Soil Cohort 2 Workshop Observation [BP-RO/MM]
March 21, 2015

Observation
PAST FOUNDATION Participants: Ketal Patel, Beth Witte, Jim Dvorsky, Mathew Broda, Herb Broda, Derin Hadinger, Meghen Matta

Day 2 District Participants: Fairfield Union (7), Federal Hocking (3), Lancaster (4), and Walnut Township (2)

Student Engagement

- Surveyed students to determine potential interest in Hocking Field experience
- Students at elementary level will create and compare maps
    - Developing field guide for elementary students for spring trip
- WIFI weather devices will be placed into multiple classrooms
- Students will participate in gardening projects
- District with existing composting project plans to expand with Growing SOIL funds
    - Students use independent time to manage compost bins
- Students will build bat and bird houses
- Involvement of student organizations
- Students will be able to experiment with gardening in 4 small raised beds

Teacher Engagement

- Summer Professional Development opportunities discussed
- Teacher who is not involved with the design process at one district highly motivated to place flowerbeds around the nature observation center
- Project design team in one district began with three teachers initially
    - Brainstormed and expanded to reach out to teacher leaders who were viewed as necessary for school community support
- SOIL team held focus group with staff and teachers
- One district proposes encouraging teacher engagement by offering involved teachers stipends to buy related supplies
- Teacher-based team meetings lead by SOIL staff to ask for input or collaboration around the district

Community Involvement

- Working with Soil and Water Conservatory District for compensation
- Parent meeting held to share Hocking Field experience
- Creation of a promotional video to share with the community
    - Website page
- Nature observation center can be used by the community
    - Community support is essential to build nature observation center
- Partnering with Community Food Initiatives to donate materials and labor
- Working with community partners to get native plants for the nature observation site

Sustaining Innovation

- Districts will budget a buffer for shipping and unforeseen additional costs
- Partnership with the Soil and Water Conservatory District for innovations on site
- Teachers will participate in professional development (PD) over the summer
    - Offer a PD Boot Camp
- Data points utilized to track use of outdoor learning space
- Summer gardening opportunities available for students/parents/community
- AMERICORPS partnering on a composting project and sustaining safety in the labs
- Online project management platform presented as potential resource for design teams

Curriculum Development

- District may utilize outdoor learning carts for accessibility and to make outdoor learning easier
- WIFI weather devices to compliment curriculum
- Students to learn about invasive species and local species through gardening projects
- Curriculum design for one district focuses heavily on students interaction with nature observation center
- Curriculum design for one district has a heavy TPBL focus with cross curricular projects as well as projects across schools [Elementary to High]

Collaboration

- District networking trail cams together for their middle schools and elementary schools
- Many districts across county working with the Soil and Water Conservatory District to sustain their innovations
- Teacher team meetings with SOIL staff where ideas and inputs can be shared

Challenges

- One district is having community pushback to building the nature observation center
    - Cannot decide on optimal location for nature observation center
- District highly skeptical on Hocking College opportunity
    - Interest beginning to show in the 6th-8th grades
- One district was particularly pre-occupied with a community issue and was not sure how to think far enough into the future to plan for this project with grant money when they feel unsure about their community and school's future
- District plans on utilizing existing nature observation center which has distance and time constraints
    - Missed "lessons learned": the district may not be considering time issue
- One Project team feels like they need to work around their administration to approach the community
- Information in one district is not being given out to parents

COHORT 2 PRE-PLANNING SURVEY ANALYSIS

Cohort 2 orientation and official launch of the implementation phase of the Growing SOIL program was held on January 9-10, 2015. The Knowledge Capture team conducted both structured observation over the two-day planning workshop, as well as a pre-planning survey. The bullet point report of the observation, and the full survey analysis were presented in the January 30 mid-year grant report.

A total of 13 individuals (86%) completed the survey of the 15 team members that attended the two-day workshop. Additionally, 16 of the 23 members across all districts (73%) completed the P3 online course, *Introduction to Transdisciplinary Problem Based Learning*.

This brief overview of the of the pre-planning survey questions provides a short summary of issues that Design Team respondents were asked to address in questions 2-13:

Qs 2-4 are profile questions to provide the implementation team with background information on the members of the Design Teams, including number of years in the field of education, current content areas, and their comfort level in reaching out to others within their building.

Q5 allowed teachers to respond to an open-ended question about their experience with outdoor learning activities.

Q6 asked respondents about their comfort level with taking students out of the classroom.

Qs 7-10 are open-ended questions about specific goals, vision, and anticipated challenges for the STEM Outdoor Innovation Labs. (Q7 asked about goals for students, and Q8 asked about goals for teachers.) Q9 asked respondents to describe how their STEM Outdoor Innovation Lab relates to transdisciplinary problem based learning. Q10 asked respondents to list anticipated challenges in implementation.)

Qs 11-13 address support and resources essential to meeting goals by June 2015. Q11 asks respondents whether they have experience reaching out to community partners, and then asks them to list prior experiences in reaching out to the community. Q12 asks about comfort level with reaching out, and Q13 is an open-ended question concerning additional support or resources that might be helpful in meeting their goals.

Some of the questions in the survey are designed to inform the PAST implementation team about the group as a whole, as well as areas of special importance for the design of the training program. This includes the profile questions, as well as other questions about understanding of the different components of the project and perceptions about areas where the teams think may be more challenging. This information is utilized to design the workshops and on-site visits, one-on-one meetings in a process that can effectively meet particular needs during early phases of design and planning.

Understanding of STEM, transdisciplinary problem based learning, teacher collaboration, integration of content areas in developing curriculum are also reflected in the pre-design survey to gain insight on the value of the P3 online training that

Summary of Issues Identified by Cohort 2 Participants

The discussion that follows focuses on Q5, Q7, Q8, Q9, Q10, and Q13.

When asked about experience working with students outside the classroom (Q5), 12 respondents indicated that they did have experience with outdoor learning. The table below shows 9 specific outdoor activities conducted by teachers. Among the top answers cited, 46% of teachers described experience in conducting outdoor lab work (n=6), and 69% cited conducting activities related to science instruction including ecology, astronomy, specimen collection, mapping, and creating scientific typologies.

Q5b: Types of outdoor activities (n=12)	Number of Responses* (n=21)
Labs	6
Ecology	5
Change of Venue	3
Walks	2
Astronomy	1
Specimen Collection	1
Field Trips	1
Mapping	1
Scientific Typologies	1
*Some participants expressed multiple ideas in their response.	

Respondents were asked to describe three top goals for the STEM outdoor lab (Q7). More than half of the respondents (n=8) cited the top goal was to more effectively engage students in learning, as well as create a learning experience with "real world application" to achieve student learning in a meaningful way (n=5).

Q7: Please describe your top three goals for your students with STEM Outdoor Innovation Labs. (n=13)	Number of Responses* (n=32)
Student Engagement	8
Change of venue/ place	6
Real world application	5
Appreciation for the outdoors	3
Creating outdoor Leaning Experiences	2
Instruction methods	2
Critical thinking	1
Developing outdoor learning spaces	1
Experimentation	1
Inquiry based-learning	1
Problem-solving	1
Transdisciplinary learning	1
*Some participants expressed multiple ideas in their response.	

Respondents were also asked to share their views about the way in which teachers in their building could use the outdoor learning lab. Among the top three answers, teachers (n=4) identified the potential for creating curriculum for outdoor learning, increasing student engagement, and developing creative use of the outdoor space on the school grounds.

Transdisciplinary learning was also cited by three individual respondents, suggesting that these teachers will pursue opportunities to work with other teachers across content areas to develop integrated curriculum. Two respondents also noted collaboration with other teachers as an important goal. In the table below, 12 ideas were identified in the survey responses.

Q8: Please describe your top three goals for teachers in your school with STEM Outdoor Innovation Labs. (n=12)	Number of Responses* (n=26)
Curriculum	4
Engagement	4
Use of outdoor space	4
Transdisciplinary learning	3
Comfort teaching outdoors	2
Create outdoor learning opportunities	2
Teacher collaboration	2
Interest in the outdoors	1
Fun for teachers and students	1
Problem Based Learning	1
Student feedback	1
Real world application	1
*Some participants expressed multiple ideas in their response.	

Cohort 2 team members were asked to complete the P3 online course as an important component of preparation for the design and implementation phase (January to June 2015). Question 9 looks at the concepts that Cohort 2 teachers developed following completion of the P3 coursework. Teachers were asked to describe how the outdoor lab relates to curriculum designed for transdisciplinary problem based learning (TPBL). Integrated content, teacher collaboration, and real world application were among the top ideas. This question also elicited one response identifying "student collaboration" as an aspect of TPBL. The table below identifies 14 concepts associated with TPBL.

Q9: As part of the SOIL project team, please describe the top three ways that your STEM Outdoor Innovation Lab relates to the transdisciplinary problem based learning (TPBL) curriculum. (n=11)	Number of Responses* (n=27)
Problem Based Learning	5
Transdisciplinary education	4
Real world application	3
Teacher collaboration	3
Create outdoor learning space	2
Science curriculum	2
Common core	1
Opens links to community	1
Flexibility	1
Stimulating student growth	1
Student collaboration	1
Student engagement	1
Teacher buy-in	1
Teachers see "The Big Picture"	1
*Some participants expressed multiple ideas in their response.	

Challenges identified by teachers in implementing their outdoor lab plan focus on concerns about time management (N=9), followed by fostering teacher buy-in among their colleagues (n=6). Logistics, cost factors, materials, accessibility, and maintenance are also listed among the challenges cited by teachers, but are not of high concern with only one individual citing each of these issues as a major challenge. The table below identifies a range of issues that the PAST implementation team will review with individual school teams in the context of workshops and site visits.

Q10: What do you anticipate to be the top three challenges in implementing STEM Outdoor Innovation Labs? (n=12)	Number of Responses* (n=30)
Time management	9
Teacher buy-in	6
Planning time	2
Teacher collaboration	2
Accessibility	1
Connecting to curriculum	1
Cost	1
Distance management	1
Effective use	1
Logistics	1
Maintenance	1
Materials	1
Policy	1
Project focus	1
Transdisciplinary use	1
*Some participants expressed multiple ideas in their response.	

Teachers (n=7) identified additional support they felt could be helpful to them in achieving their goals for creating an outdoor learning lab (Q13). Respondents cited 6 areas that could be important for them during the design and planning phase of work including:

- Additional project team work time
- Catalog/website of supplies
- Guidance (throughout process)
- Ideas for outdoor learning
- Strategies for attaining more funding
- More professional development regarding use of STEM Outdoor Learning Labs