DRAFT Environmental Literacy Plan - Lancaster-Lebanon Intermediate Unit 13 Center-based Programs

District Profile	
District Name	Lancaster-Lebanon 13
District Description/Character Statement *(This narrative should include components such as demographics, location, surrounding land use, # schools, #teachers, # Students, identification of environmental health and environmental justice issues, active community partners, expected changes in community over the next 5-10 years)*	The IU13 center-based programs are located among 4 buildings within Lancaster County, PA. The programs contain 23 classrooms, serves 166 students, and employs 24 emotional support teachers. The students in the center-based programs have been identified with varying disabilities such as: emotional disturbance (ED), specific learning disability (SLD), other health impairments (OHI), or autism (AS). 100% of students in the program have IEPs with severe behaviors that impede their learning or that of others. The classrooms are organized by grade band: there are multiple grade levels per classroom (e.g. an elementary classroom could include grades 3-5 and a middle school classroom could include grades 6-8). For these students, nature can serve as a classroom as well as a therapeutic environment. Pennsylvania students' health and learning potential is directly impacted by environmental issues including indoor and outdoor air quality, water quality and availability, food access and sustainable agriculture, degrading and contaminated infrastructure, persistent elevated noise levels, and other environmental issues exacerbated by changing climate impacts. IU13 estimates that about 43% of its center-based students come from districts classified as either Urgent or High Need on the Environmental Literacy Equity Map. IU13 is located in the southeast part of Pennsylvania, on the east bank of the Susquehanna River. Lancaster County is almost completely within the Chesapeake Bay Watershed, and only one school district in Lebanon County

	has less than half of its geographic footprint inside the Watershed. IU13's location and proximity to the Bay means everyday choices like recycling, composting, energy, and water use play a role in the health of the larger Bay watershed. There are currently 64 Wastewater Management and Remediation Services in Lancaster County alone. As the current employees retire and the demand for qualified employees in this field continues to grow, we must ensure we have an educated and skilled workforce to fill the fast growing job demands.
District Vision for Environmental Literacy *(this may be dynamic as the community and knowledge base evolve)*	Our vision is to develop environmentally literate learners able to make everyday life decisions and understand their impact on the environment by providing equitable and hands-on access to environmental education.
District Environmental Literacy Leadership Team Members *(NOTE: This can include community partners, faculty, staff, students and other stakeholders. It is highly recommended that one or more students be part of this team and encouraged to provide voice in each pillar of this template)*	IU13 Center-based program administrators, IU13 Special Education Consultants (SECs), IU13 Instructional Services STEM consultant, Chesapeake Bay Foundation, Lancaster Agriculture Council, Thaddeus Stevens College, Lancaster Conservation District, PA Department of Environmental Protection (DEP), Stroud Water Research Center, PA Department of Education, PA Department of Conservation and Natural Resources (DCNR), Elizabethtown College, Lancaster County Parks and Recreation, ENGINE of Central PA STEM Ecosystem and Lancaster County STEM Alliance.
How will this plan address issues of equity and access to high quality environmental literacy education in the district?	By focusing on systematic environmental literacy planning that emphasizes equity for students with special needs, and revising science curriculum, this plan will change the opportunity structure that favors some students over others for reasons that may include disability. By writing a curriculum incorporating a standards-aligned MWEE in each grade level, all students will receive access to at least one environmental education experience per year.
📚**Program Sustainability and iterative evaluation** *(May include audits, curriculum review sequence, alignment*	This project utilizes seed money from a NOAA B-Wet grant to initiate, implement and then institutionalize a comprehensive environmental literacy

to comprehensive plans)	program over three years. The development of an environmental literacy plan will ensure a strong vision is established with input from multiple stakeholders, and clear and actionable steps are established to meet the plan's intended outcomes. Over the three year period, standard aligned K-12 curriculum will be established to ensure all students are provided an outdoor environmental experience per school year. Providing professional development for program teachers and special education consultants will ensure teachers have the foundational content knowledge and pedagogy skills to implement high quality educational programming. The special education consultants will develop their skills to support teachers after the grant funds expire. The NOAA seed money will purchase necessary non-consumable equipment that will support each outdoor experience for many years.

Pillar 1: Reduced Environmental Impact: **Describe how your school, district, or postsecondary institution is reducing environmental impact and costs in the areas below. Use supporting data and reference participation in pertinent benchmarking programs to demonstrate progress where possible. Identification of issues and strategies should be community wide and include student voice and partnerships with facilities and operations management. Bridges to other pillars, including curricular connections are recommended.**

Overarching Goal(s):
Students and staff at the IU13 center-based schools will increase awareness and overall effectiveness of sustainability efforts within their circle of influence and increase the number of IU13 facilities that reduce the impacts of building and grounds on the local environment.

	Goal(s)	Outcome(s)	Strategies
Energy conservation and efficiency *Reducing or eliminating greenhouse gas emissions; using an energy audit or emissions inventory and reduction plan, cost-effective energy efficiency improvements, conservation measures, and/or on-site renewable energy and/or purchase of green power;* *Identify your energy-efficient*	Empower IU13 students and staff to make environmentally sustainable decisions regarding energy conservation and efficiency.	Students will understand the factors that make a product energy efficient. Students will be able to construct an argument for using energy efficient products. Students will be able to design a solution to an energy-related problem in their school and community.	**Facilities Strategies:** Students will partner with the IU13 facilities department to participate in an energy efficiency audit. Students will partner with the facilities department at IU13 to develop solutions to problems identified during the energy efficiency audit. Students will gain exposure to STEM careers through their collaboration with members of the facilities department. **Student Curricular Strategies:**

facilities and practices, ecologically and educationally beneficial uses of grounds, and methods of disposal for solid and hazardous wastes.			Students will engage in the engineering design process (STEM learning) to design solutions to identified problems. Students will engage in the science and engineering practices to increase energy efficiency within their center-based building.
Improved water quality, efficiency and conservation *Improving water quality, efficiency, and conservation; including use of onsite best management practices inside and outside the property.*	Empower IU13 students and staff to make environmentally sustainable decisions regarding water quality, efficiency and conservation.	Students will understand the factors involved in calculating water usage. Students will be able to construct an argument for using products and procedures that decrease water usage. Students will be able to design a solution to a water-related problem in their school and community.	**Facilities Strategies:** Students will partner with the IU13 facilities department to participate in a water usage audit and evaluate water conservation and efficiency on the property of their facility. Students will partner with the facilities department at IU13 to develop solutions to problems identified during the water usage audit and property review. Students will gain exposure to STEM careers through their collaboration with members of the facilities department. **Student Curricular Strategies:** Students will engage in the engineering design process (STEM learning) to design solutions to identified problems. Students will engage in the science and

			engineering practices to decrease water consumption within their center-based building and on the grounds of their facility.
🗑️**Reduced waste production, improved recycling and composting programs** ♻️ *Reducing solid, food, and hazardous waste production through increased recycling and composting, reduced consumption, and improved management, reduction, or elimination of toxic cleaning chemicals or hazardous waste.*	Empower IU13 students and staff to make environmentally sustainable decisions regarding waste production, recycling and composting programs.	Students will understand the factors involved in calculating the amount of waste produced and the amount of recycling within their facility. Students will be able to construct an argument for using products and procedures that will decrease waste and increase reuse and recycling within their facility. Students will be able to design a solution to a waste-related problem in their school and community.	**Facilities Strategies:** Students will partner with the IU13 facilities department to participate in a waste audit and evaluate the amount of recycling that leaves the school facility. Students will partner with the facilities department at IU13 to develop solutions to problems identified during the waste audit and recycling evaluation. Students will gain exposure to STEM careers through their collaboration with members of the facilities department. **Student Curricular Strategies:** Students will engage in the engineering design process (STEM learning) to design solutions to identified problems. Students will engage in the science and engineering practices to decrease waste and increase recycling within their center-based building and on the grounds of their facility.

🛣️ **Use of alternative transportation to, during and from school** 🚌 *Expanded use of alternative transportation, through active promotion of locally available, energy-efficient options and implementation of alternative transportation supportive projects and policies*	Educate students to alternative forms of transportation and their impacts on the environment.	Students will explore alternative forms of transportation that are being investigated by the IU13 fleet of vehicles. Students will be able to construct an argument for using alternative forms of transportation. Students will be able to discuss solutions to a transportation-related problem in their school and community.	**Facilities Strategies:** Students will partner with the IU13 facilities team to explore how alternative forms of transportation are being used at IU13. Students will partner with the facilities department at IU13 to discuss alternative transportation options and their benefits and drawbacks. Students will gain exposure to STEM careers through their collaboration with members of the facilities department. **Student Curricular Strategies:** Students will engage in the engineering design process (STEM learning) to design solutions to identified problems. Students will engage in the science and engineering practices to discuss strategies for reducing their impact on the environment through their use of transportation.

📌Need help with this section? Refer to: Pillar One: Reduced Environmental Impact

Pillar 2: Positive Impact on Student and Staff Health: Describe how your school, district, or postsecondary institution improves the health and wellness of students and staff in the areas below. Incorporate metrics and include program participation where possible.

Overarching Goal(s):

IU13 staff and students will gain an understanding of how lifestyle choices such as nutrition, exercise and self-care impact our overall health, and how the products used to clean and maintain the school buildings impact the health of staff, students and the environment.

	Goal(s)	Outcome(s)	Strategies

🦠Environmental Health Program ⚠️ *Integration of an environmental health program that considers sound health and wellness and safety in all design, construction, renovation, operations, and maintenance of facilities and grounds* *Encourages implementation of integrated pest management or other preventative protocols in the following areas:* ● *Cleaning and maintenance;* ● *Mold and moisture prevention and remediation* ● *Reduced exposure to chemical and environmental contaminants;* ● *Ventilation, improved indoor air quality;*	Educate students to alternative forms of environmentally friendly and sustainable cleaning products. Educate students to the processes used to monitor mold levels and air quality within the IU13 buildings and facilities. Equip students with strategies for managing pests that maintain the health of the students, staff and environment.	Students will be able to identify signage and symbols that identify sustainable or dangerous cleaning products. Students will be able to design a plan for how to continually monitor and remediate the mold levels and air quality within their center-based classroom. Students will be able to identify pests within their facility and design an ecofriendly pest management system.	Students will partner with IU13 facilities to design signage to inform students, teachers and guests regarding cleaning products used. Students will partner with the IU13 facilities department to shadow a routine facilities inspection that includes air quality, mold, safety, pest management, maintenance and cleanliness on the property of their facility. Students will engage in the engineering design process (STEM learning) to design solutions to identified problems. Students will engage in the science and engineering practices to improve the overall environmental health of their facility.

• *Pest management and pesticide use reductions*			
🥗**Nutrition, Fitness and Outdoor Time** ⚽ *Describe how your school is working to meet the high standards of [Whole School Whole Community, Whole Child healthOpens In A New Window](). Be sure to include how your school is supporting the following efforts:* • *Nutrition and improved access to healthy foods in and out of school* • *Outdoors physical activity* • *Other: components you may include are health education, health services, counseling, psychological and social services, sun safety, staff health*	Educate students to make healthy food and snack options both in and out of school. Educate students to the physical and mental health benefits of outdoor physical activity. Educate students to the resources available in the community to support physical and mental health.	Students will be able to construct an evidence-based argument regarding food and snack choices. Students will develop solutions to increase physical activity both inside and outside of the school day. Students will design a plan to increase their community awareness of physical and mental health resources available.	Students will design solutions that increase awareness of healthy food and snack choices. Students will partner with IU13 facilities to create outdoor spaces that allow an increase in physical activity (walking trails, playgrounds, etc.). Students will engage in the engineering design process (STEM learning) to design solutions to identified problems. Students will engage in the science and engineering practices to improve the overall health of the staff, students and environment.

promotion, and family and community involvement			

📌Need help with this section? Refer to Pillar Two: Positive Impact on Student and Staff Health

Pillar 3: Effective Environmental and Sustainability Education (Summary and Overall Perspective) : School districts can provide opportunities for teachers and students to engage in "awareness to action" discussions and learning programs. As schools implement sustainable practices, teachers need necessary tools to involve students in understanding the reason behind the changes and how they impact the natural and social world in which they live.

	Goal(s)	Outcome(s)	Strategies
📖**Curriculum** *Pillar Three focuses on effective environmental and sustainability education, which includes:* ● *Interdisciplinary learning about the key relationships between dynamic environmental, energy and human systems;* ● *Use of the environment and sustainability to develop STEM content knowledge and thinking skills; and* ● *Development and application of civic*	Develop a standards-aligned curriculum for the IU13 center-based classrooms that focuses on environmental literacy and sustainability for all grade levels and courses. Equip classrooms with materials and resources needed to implement the environmental education curriculum. Incorporate career, education and work standards into the environmental education curriculum.	Students will participate in standards-aligned environmental education curriculum that develops their environmental literacy, content knowledge, habits, skills and dispositions. Students will be trained to use authentic equipment used by professionals in the field during their outdoor field experiences. Students will identify and explore potential STEM career choices that can be pursued post-graduation and skills necessarily for these careers.	All center-based classroom teachers will receive a standards-aligned curriculum written by a team of teachers guided by IU13 C&I staff that can be adapted to the needs of their students. Teachers will receive guidance in identifying the equipment needed to support their curricular goals. Students will be given opportunities to shadow IU13 facilities staff and local environmental experts to explore career pathways in STEM and environmental

engagement knowledge and skills. ● *Identification of resources, ancillary curriculum that supplements current, community resources to provide.* Note: consider interdisciplinary learning, development of STEM thinking, and civic engagement **(Refer to Appendix A: Environmental Literacy Framework)**			science.
👩‍🏫**Instruction** Note: consider the use of MWEE at each grade level or selective grade levels **(Refer to Appendix A: Environmental Literacy Framework)**	Engage every student in every grade in a standard-aligned Meaningful Watershed Educational Experience (MWEE) that involves an outdoor field experience and culminates in an action project.	Students will participate in authentic learning experiences that are engaging and empowering and lead to civic action in their communities. Students will regularly participate in environmental education that includes STEM projects and hand-on learning.	Teachers will design MWEEs that align with their curricular topics. Students will use the science and engineering practices to identify, explore, and develop solutions to local environmental education issues.
👩‍💻**Professional Development**	Teachers will receive environmental education training available through the online asynchronous MWEE 101 course.	Teachers will earn a MWEE 101 completion certification. Teachers show content knowledge and pedagogy growth as a result of	

	Teachers will receive an intense 3-day environmental education training led by Thaddeus Stevens faculty that will provide content knowledge on the topics within the PDE environment and ecology standards. This training will be made continually available to teachers through a Schoology course. Teachers will be trained in instructional practices to implement environmental education lessons and activities in their classrooms. The Special Education Consultants (SECs) will receive individual training to provide ongoing support to teachers in the implementation of the environmental education curriculum.	participating in the professional development opportunities. The SECs will work directly with center-based teachers providing instructional coaching to support the implementation of the new curriculum.	
🔗**Community Partnerships** *(Potential resources to support environmental literacy and*	Establish community field sites to support the MWEE outdoor field experiences.		

facility management planning and instruction may include but are not limited to: Find EE near Me, DCNR Conservation Education Resources, PA Game Commission; PA Fish and Boat Commission, PA Conservation Districts)	Collaborate with local environmental experts in the design, implementation, support, and delivery of the environment education curriculum.		
💵**Funding** *Pennsylvania DEP Environmental Education Grant Program invests in schools to improve environmental awareness among students and staff alike. https://www.dep.pa.gov/Citizens/EnvironmentalEducation/Grants/pages/default.aspx*	Utilize the NOAA B-Wet grant funds to develop ongoing environmental education curriculum and outfit classrooms with the non consumable supplies needed to participate in outdoor field experiences. Leverage the funding through local STEM ecosystems to continue to build the capacity and sustainability of this project.		

📌Need help with this section? Refer to Pillar Three: Effective Environmental and Sustainability Education

Appendix A: Environmental Literacy Framework - COMING SOON

To complete this table, be sure to identify where there are existing environmental literacy components in each grade band including field experiences, outdoor laboratories and explorations, after school or camp settings. You may also include programming offered in out of school time such as 21st Century Programs, Migrant Education, or enrichment programs.

Refer to Pillar 1 & 2 to identify the opportunities where students may be engaged in school grounds-based opportunities. Additionally, consider what issues or opportunities exist within the wider community that may be appropriate for supporting student investigations.

We recommend clearly labeling which elements are Meaningful Watershed Educational Experiences (MWEEs), as opposed to stand alone field experiences or other environmental literacy activities. MWEEs should include issue investigation, outdoor field experiences, synthesis and conclusions, and stewardship and civic action. The Environmental Literacy Model (ELM) and Think Cloud can be helpful planning tools for developing MWEEs. Environmental Literacy Model:
https://cbexapp.noaa.gov/pluginfile.php/86376/mod_resource/content/2/MWEE%20Tool--ELM%20Form_508_rev01_editable.pdfn
Think Cloud: https://www.cbf.org/document-library/education-resources/mwee-toolbox.pdf

Grade	Title/ Investigative Issue	Connection to Standards	Outdoor Learning Location	Current or Potential Partner	Funding	Professional Development and Supports
K						
1						
2						

3						
4						
5						
6						
7						
8						
High School						

Supportive Programming						

Educate students and families to make sound decisions Career planning Facilities (buildings and grounds) to be more energy efficient and sustainable. Building awareness of what is in our circle of control and what we can influence. Students will develop life skills to be good stewards of their energy resources as independent citizens of their communities.	No idling policy Students sort recycling and composting Pollinator garden Recycling in the classroom Composting and recycling in the cafeteria Water filling stations Buildings do an energy audit to reduce utilities to become more energy efficient. Change the summer AC set-point and use dehumidifiers Proper handwashing use	

Students will identify a problem related to energy efficiency and conservation in their community and develop evidence-based solutions.	Track recycling Outdoor classroom	