RREV's Innovative Pilot Template

As part of the **Innovative Mindset and Pilot Development** courses being offered through several of Maine's institutions of higher education, the RREV project uses a consistent template for the creation of all future pilots. Because every pilot created and tested with RREV funds WILL BE published in EnGiNE, we want all of Maine's educators to have the assurance of consistency.

This template provides an outline of the components required of an Innovative Pilot. The information in this template will serve as the basis for requests for school/district level project funding.

Section 1: Define the Need

A. Describe your innovation.

Consider what evidence supports the need for an innovation, and the evidence that suggests your innovation will improve the current situation.

The Bucksport Middle School Applied Learning Lab builds on our Students Taking Alternative Routes to Success [STARS] program and the recently constructed, student-designed outdoor classroom and school garden. This project expands middle-level educational opportunities for students to explore and develop new and existing interests while building social, emotional, academic, and personal skills across the curriculum and within the community.

The Applied Learning Lab is a collection of multi-use work spaces where students and teachers imagine, theorize, create, and explore their core content curriculum through hands-on learning projects. Not only will these spaces be used for interdisciplinary, exploratory, experiential learning in the core academic content areas but they will also be used as a place for teachers and students to build community, enhance a sense of pride and ownership for their school community and their learning, and to advance and teach necessary social and life skills.

The proposed space includes a 4-season greenhouse and kitchen/makerspace. The greenhouse is home to aquaponics tanks that house independent, sustainable ecosystems of fish and plants. In addition to plants and fish, the greenhouse has a large communal table and shelving along the walls. Students and teachers make observations, have meaningful classroom discussions, document their processes and store materials and various projects. Students in our GT program create a business plan to sell "aquaponic tonic" at the local farmers market to home gardeners, generating revenue to further develop the ALL facility. The growth that takes place in the greenhouse is not just that of the plants and fish. Lessons on science, math, ELA, geography, history, social studies, economics, social justice, stewardship, responsibility, collaboration, risk taking, and experiencing success through failures are also taught here.

As you exit the greenhouse and enter our Applied Learning Lab Kitchen/Makerspace, student art and academic work is displayed. Our Learning Lab Values affirm that we value and welcome all students in a place that celebrates diversity, creativity, kindness, and curiosity. In this open, multi-use space we might explore restorative practices or hold meditation and mindfulness sessions to remediate maladaptive behaviors and teach healthy coping mechanisms. There is a resource library lining the walls for our aquaponics system, greenhouse gardens, and kitchen. In the middle of the room is an open-table makerspace, with tools and technology for students to tinker and problem-solve. This makerspace is a wonderful place for workshops for visiting engineers, architects, mechanics, and

other maker-minded professionals to teach advanced skills to our students, as well as hosting student presentations, poetry readings, and other celebrations of applied learning.

A fully equipped Lab Kitchen with stainless steel work tables for food safe preparation, a refrigerator/freezer, food preparation sink, and two oven/stove tops can accommodate a class of students cooking together. One of the major benefits of the Learning Lab Kitchen is for practical life and social skills instruction. Creating and sharing a meal together allows space for humane conversations which build a stronger, more compassionate and understanding learning community.

Our students are not the only ones who are learning. Teachers are able to take abstract lessons from their classroom into the Applied Learning Lab to show concrete and practical applications. Teachers are supported to stretch their repertoire of teaching strategies to match the ever-evolving learning styles and needs of students. The Lab provides a space for specific professional development opportunities supported by experts from the community.

The possibilities for incorporating core-content instruction into this space are endless. The real benefits of the Applied Learning Lab come from the innovative, interdisciplinary, project-based opportunities for students and teachers to work together to apply skills taught in the classroom. These Learning Lab spaces will enhance a sense of community across the entire school, fostering academic, social, and career enhancing partnerships with our local community members and families. Our hope is to engage youth as agents of change, offering a platform for student voice that teaches problem solving and design processes.

<u>*The Apple Pie Experience* in Bucksport Middle School's Applied Learning Lab</u>

Imagine yourself as a 5th grade student in Social Studies studying geography, maps, and lines of longitude and latitude. Your class is about to begin a new lesson on explorers and global trade routes, and your teacher begins her lesson by giving you a basic recipe for an apple pie. You ask yourself, "What does this have to do with social studies?" Your class travels out to the Learning Lab Kitchen/Makerspace and on the table are 7 simple ingredients: Apples, Lemons, Sugar, Flour, Salt, Cinnamon, Nutmeg.

On the wall is a map of the world. Your teacher begins by asking the class, "of these ingredients, which do you think are grown or made in America?" She then narrows the scope even further, "which do you think are grown or made in Maine, or in Bucksport?" You read primary and secondary sources about the history of these foods and their cultural, political, and social importance to a region or population.

In your Science class you explore how fruits, vegetables, plants, and animals have evolved naturally into various varieties or species, or have been cultivated and manipulated by humans in order to meet the geographic and climatic needs of a region. You step into the Learning Lab Greenhouse to examine and record growth rates for the plants growing in the heated, 4-season space. Your science teacher encourages you to imagine and draw on your previous and personal knowledge to determine if these plants could be grown without the use of the greenhouse at this date, time, and location.

In Math class, you review the same apple pie recipe to figure out how much of each ingredient you would need in order to make enough pie for everyone in your class to enjoy a slice, integrating measurement and fractions. When the class travels to the Learning Lab Kitchen, the teacher asks you to review the properties of density for a cup of chopped apples vs. a cup of flour.

Later, in Health class, you learn about the nutritional facts of each apple pie ingredient. You discuss what nutrients, and the benefits, you might get from eating an apple pie. You discuss what makes something "healthy" vs. "unhealthy", the differing ingredients in a homemade pie versus a prepackaged one you buy at the store, as well as exploring what ingredients might be substituted to make this pie more- or less- "healthy".

Your ELA class reads various texts (non-fiction, creative, poetry, children's literature, fictional) that have one of the apple pie ingredients as a main focus. You return to the Learning Lab Greenhouse to receive inspiration from nature while you work on writing a fictional narrative about an apple grower, a history of the spice trade or an essay on the origin of apples being an icon for healthy food.

In Art class your teacher shares a painting with apples as the centerpiece and examines when they were painted, who was the artist, and where were they located. You are asked to spend some time examining parts of an apple tree and illustrate what you see in your nature journal. You are invited to make your own imagery to summarize your learning of the journey of the ingredients to make an apple pie while sitting in the outdoor classroom, snacking on a slice of pie that your class just made using your recipe.

B. Identify which students would be impacted, targeted, or supported by the innovation.

Review the evidence – quantitative and qualitative data and research – that indicates this group of students is considered the most vulnerable and would benefit from the described innovation.

Data you can use to inform your innovation, rationale, and targeted student population include the performance of various groups of students (e.g., students in rural locales, students from low socio-economic conditions, students with disabilities, students who are Els, students at risk for dropping out, student who are homeless) with regard to academic achievement, graduation rates, social emotional and mental wellness, economic data, and/or workforce participation.

The results from the 2020-2021 Gallup Student Poll, a survey with 22 items that measure student's views on engagement, hope, belonging and social and emotional learning, have shown us that we have a large population of students who feel somewhat or actively disengaged from school (59%). We also have a very high number of students who identify themselves as struggling to manage emotions and voice their feelings in order to problem solve and manage social relationships. This has been exacerbated by the pandemic and is evident in our attendance and discipline data:

	% Chronically Absent	# of Suspensions
2018-19 [all year]	18.4%	85
2021-22 [1st trimester]	29.1%	45

However, the Gallup Student Poll has also shown us that the majority of our students feel safe at school, feel as if they have trusted adults at school, and also have both academic and social aspirations.

This RREV innovation concept grew from the STARS class- a small program designed specifically for highly disengaged vulnerable youth by connecting them with caring adults, focusing on social & emotional learning, and building student ownership in the school. Learning from the successes of this pilot program we want to better meet the needs of not only our most vulnerable students but also of our school as a whole and the community at large.

The evidence is clear that our students value and want more opportunities to be creative in their learning, to connect with their peers, and to learn important and holistic life, social and academic skills. By recently surveying our 5th-8th grade students, we learned that 55% of our students associate getting good grades with being successful at school. Forty percent of them said that being successful at a job is marked by doing a good job and/or working hard. The student data showed that out of the 177 students that responded to the survey, 71% of them believed that social skills were one of the most important things needed to learn for success in life. Sixty-five percent of them thought that creativity was one of most important skills, followed by a positive mindset (59%), communication skills (59%), practical life skills (55%), academic skills (55%) and flexibility and adaptability (54%).

These results all point to the need to help all students feel like they are set up for success now and in the future, to feel like they are well equipped to achieve in school, in a future job, and in their lives as a whole. All of this data about what students value and find most important in order to succeed now and in the future, their social-emotional challenges, positive connections and aspirations, have inspired us to reimagine what a rigorous and energizing education looks like at Bucksport Middle School. By creating the Advanced Learning Lab, we will create alternative spaces, programming and opportunities for ALL students to enthusiastically engage and be involved in on a daily basis. The Applied Learning Lab will also carve out a niche for our gifted and talented students, providing sophisticated real world opportunities to explore academic subjects in depth and hone collaboration and critical thinking skills.

It has been well documented that successful middle schools provide safe places for students to explore their interests, develop their world views and identities, and engage in challenging and vigorous academic learning [see the Association for Middle Level Education's *The Successful Middle School* by Bishop & Harrison]. However, before rigorous academic learning can occur, students must experience a respectful, inclusive, and affirmative learning environment guided by trusted adult advocates. A successful middle school also engages families and the community as valued partners. We believe that the alternative approach the Advanced Learning Lab inherently holds will offer experiential opportunities for all of the above listed markers of a successful middle school.

Section 2: Describe the Innovation

A. Describe the goals of your innovation.

Consider how your innovation will meet the needs of the identified target student population(s) and how you plan to achieve your goals. Additionally, consider any changes in policy, practice or structures you expect as a result of the innovation.

The Bucksport Middle School Applied Learning Lab is designed to promote best practices in middle-level education. This space will provide opportunities for students and teachers to explore learning outside traditional classroom walls, investigating ideas generated by students, connecting to community challenges, and making learning relevant and fun for both students and teachers. This project is a gateway to enhancing current educational programming and expanding opportunities for experiential learning for all students while also enriching learning experiences for fringe learners, those who need acceleration or remediation.

The specific project goals are to:

1. Expand experiential and hands-on learning to increase student and teacher engagement in learning.
2. Foster student voice and agency in healthy and beneficial ways.
3. Create educational connections across the curriculum and within the community
4. Create an educational space where students and teachers find joy in learning together.

5. Support student social/emotional skill development and teacher social/emotional wellness

All teachers and all students will be impacted by this innovation and the space it creates. This is an incredible opportunity for our staff and our students to explore different ways of learning. We are hopeful that the practices and strategies teachers learn, and the learning that students experience will lead to further conversations and investigations into best practices for middle-level learners. As Penny Bishop says in the most recent middle-level position paper, *Successful Middle Schools*, this project, and the ensuing professional dialogue that comes along with it is providing "…a framework for creating the learning environments and opportunities that all young adolescents deserve…students are prepared for success in school and career. Responsive schools for young adolescents equitably implement the full range of structures, supports, and practices known to be most effective with this age group." This project has the potential to challenge us as educators to focus lessons and units around academic investigation, community connection, and social/emotional growth.

B. Describe activities included in your plan for each stage – preparation (P) or implementation (I) – of your innovation.

- ***Preparation*** *includes building stakeholder awareness, establishing routines and processes, and coordination of logistics.*
- ***Implementation*** *includes planned implementation activities, as well as professional development for the educators participating in the innovation.*

	Activity	**Purpose**	**Stage (P or I)**	**Date of Completion**	**Person Responsible**
1.	Meet w. District administration & facilities director	Stakeholder awareness	P	3/4/22	Principal
2.	Present @ school board curriculum committee	Stakeholder awareness	P	3/10/22	Principal + RREV Team
3.	Present @ RSU 25 school board meeting	Stakeholder awareness; approval to submit grant application	P	3/15/22	Principal + RREV Team
4.	Tuning protocol to full middle school staff	Stakeholder awareness & feedback	P	3/18/22	RREV Team
5.	Exploratory field trip to Jonesport-Beals HS to see greenhouse/aquaponics facility	Research	P	3/11/22	Principal + RREV Team
6.	Exploratory field trip to Herring Gut Learning Center to see greenhouse/aquaponics facility	Research	P	3/21/11	Principal + RREV Team
7.	Meet w. Advisory team of tradespeople: contractor, HVAC & plumbing, electrical, solar, greenhouse, aquaponics	Engineer space/interaction of systems	P	6/1/22	Principal + Facilities Director
8.	Summer institute for teachers, to include training & PD in aquaponics, school gardens, experiential learning, and logistical planning for construction & use of Advanced Learning Lab facility	Professional development, curriculum development, and logistical planning	P/I	7/1/22	Principal + RREV team
9.	Site work for Applied Learning Lab, including	Prepare for construction	P	8/1/22	Facilities Director

	provision of utilities, as needed				
10.	Training for Experiential Learning guides	Professional development	I	8/1/22	Principal + contracted trainer
11.	Construct & erect greenhouse & lab kitchen, including systems such as heat, ventilation, lighting, plumbing, etc.	Construction of facility	I	12/1/22	Facilities Director + Principal & STARS class
12.	Celebration! School event celebration construction of Advanced Learning Lab shell [greenhouse]	Celebration & stakeholder awareness	P	12/1/22	RREV Team + STARS Class
13.	Summer curriculum design institute	Curriculum development	I	8/15/22	Principal + contracted trainer + EL guides
14.	Ongoing: EL guides push into existing curriculum to develop integrated learning opportunities in Applied Learning Lab, collaborate with teachers to develop lessons to be taught in ALL, support teachers in experiential learning.	Curriculum development & professional development	I	6/30/23	EL guides
15.	On-going: monthly support/training for EL guides	Professional development	I	6/30/23	Principal + contracted trainer
16.	Design & installation of aquaponics system for Advanced Learning Lab	Construction of facility	I	4/1/23	Principal + EL guide[s] + STARS class
17.	Convene team to utilize design thinking and training/PD in successful middle level education to explore the creation of an experiential grade level team at BMS which will fully utilize the Applied Learning Lab and apply middle level concepts	Sustainability	I	4/1/23	Principal
18.	Finish work on Advanced Learning Lab, such as landscaping, interior decor, accessibility, etc.	Construction of facility	I	6/30/23	Facilities Director + Principal & STARS Class
19.	Celebration! School & community grand opening of Advanced Learning Lab space	Celebration & stakeholder awareness	P	6/1/23	RREV Team + STARS Class

Section 3: Define Innovation Outcomes & Measure to Assess Outcomes

A. Identify the outcomes *(i.e., student outcomes, changes in instructional practices, changes in student practice)* that you expect to see as a result of your innovation.

Consider both short-term and long-term outcomes, at different points in the time (e.g., at 6 months, 12 months, 2 years and 3+ years).

Goal #1: Expand experiential and hands-on learning to increase student engagement in learning.
OUTCOMES:

- 6-12 months: most students and teachers will have interacted with the ALL.
- 3+ years: all students and teachers regularly teach and learn in the ALL and several grades have interdisciplinary, trimester or year-long projects grounded in the opportunities provided by the ALL.

Goal #2: Foster student voice and agency in healthy and beneficial ways.
OUTCOMES:

- 6-12 months: students in the STARS program design, build, and steward key aspects of the ALL.
- 3+ years: The design, use, and offerings within the ALL are guided by collaborative discussions between students, teachers, and community resources; the offerings of the ALL are driven primarily by student and teacher interests and passions as well as community partnerships.

Goal #3: Create educational connections across the curriculum and within the community.
OUTCOMES:

- 6-12 months: EL guides reach out to all teachers through the summer curriculum institute, professional learning communities, and informal conversations to support teacher's initial ideas and attempts at integrating the ALL into their curricula.
- 3+ years: s: BMS will have a menu of interdisciplinary projects that are continuously adapted to meet student and community needs and professional development time is devoted to teachers connecting across content and with the community.

Goal #4: Create an educational space where students and teachers find joy in learning together.
OUTCOMES:

- 6-12 months: the BMS community celebrates the addition of an Applied Learning Lab.
- 3+ years: the ALL will host regular celebrations of student learning with community partners, parents, students and educators.

Goal #5: Support student social/emotional skill development and teacher social/emotional wellness
OUTCOMES:

- 6-12 months: Many students from all grades use the ALL for mindfulness and self-regulation activities; several teachers outside the RREV team are inspired by the possibilities for connecting their traditional content in an applied, experiential way.
- 3+ year: Students apply the SEL skills they have learned through activities in the ALL to the regular classroom as well as non-school settings; teachers rely on their toolbox of social/emotional teaching strategies to respond to ever evolving social emotional and academic needs.

B. Describe your plan for collecting and reviewing data to assess your innovation outcomes.

Potential data to collect includes qualitative and quantitative data (e.g., surveys, interviews, focus groups, observations, exit tickets, and on-demand assessment(s) that can be considered.

	Data Type	Baseline (B) Interim (I) Summative (S)	Frequency of Data Collection	Person(s) Responsible for Collection and Data Quality

1.	Number of hands-on, experiential activities connected to core content in the ALL.	B, I, S		EL Guides, Administrators
2.	Number of community partners supporting student learning	B, I, S		Teachers, Administrators
3.	STARS student survey - self-efficacy	B, S		Teachers, Administration
4.	Number of PD opportunities available to teachers supporting innovation goals	B, S		Administration
5.	Teacher survey - quality of PD supporting innovation goals & self-efficacy	B, S		Administration, Curriculum Coordinator
6.				
7.				
8.				

C. Describe how you will **scale and sustain** your innovation, including necessary policy changes, changes in mindsets, capacity-building activities, and **long-term financial sustainability**.

Consider the systems changes that this innovation will require and promote.

The Applied Learning Lab is a perfect example of best practices in middle-level education, and to that end, the RREV design team has built a sustainability plan into the ALL STARS design. Utilizing RREV funds, the school will assign and support three new Experiential Learning Guides. These stipend positions will be instrumental to encouraging and inspiring teachers to investigate connections between their current core content and experiential opportunities in the Lab. As teachers become more familiar with how to make those hands-on, project-based connections, they will be more likely to utilize the space without outside support. The Experiential Learning Guides will catalog these learning experiences into a concise menu of content-specific and interdisciplinary opportunities for future teachers to access. The district is prepared to continue supporting this internal coaching model beyond this award. In addition to the Experiential Learning Guides, the district is also building a foundation for future curriculum development through the proposed Summer Curriculum Design Institutes. The district is committed to continued support of these summer opportunities where teachers will be compensated for their curriculum design work.

The vision of the ALL-STARS space is deeply aligned with the concepts expressed in *The Successful Middle School*. Consolidating and expanding these concepts beyond ALL-STARS would better align BMS with best practice for early adolescent education.

In addition to ALL STARS sustainability, we see a great opportunity for our work to inform future innovation efforts at other middle-level schools across Maine. The Applied Learning Lab has the potential to become a training space for educators from outside our district, building networks for teachers across Maine who are interested in this model.

D. Describe the feasibility review you engaged in during the development of your innovative pilot plan, including which aspects of the plan for the pilot were reviewed, which stakeholders were engaged, feedback received and revisions made to the plan as a result of the feedback.

The entire concept for the Applied Learning Lab and RREV grant application originated from an on-going community stakeholder process that supported the STARS innovation in the fall of 2021. By inviting teachers who had previously been invested in the development of the STARS program as well as keeping an open invitation to teachers newly interested in the innovation, we have drawn on the passion and expertise of a broad range of teachers. This process has allowed teachers to find their place within the innovation landscape at BMS, on their terms and timeline. This process culminated in November 2021 when the team was inspired to pursue the construction of an Applied Learning Lab that integrated gardening, aquaponics, and cooking through the RREV grant process.

Our RREV design team consisted of 8 faculty members representing science, math, health & wellness, technology, art, special services and school administration. This incredible cross-section of staff members provided invaluable input into how the innovation would impact different areas of teaching and learning at Bucksport Middle School. Our team utilized current school-level quantitative data, as well as Gallup Poll results, to better understand current student challenges. We examined attendance, disciplinary, and academic data.

We also developed surveys for both teachers and students to better understand educational and professional needs and insights from varying perspectives. We asked students about school engagement, excitement around learning, and how they define success in school and in life. We asked teachers to share experiences where they felt students were most engaged, to reflect on their own professional development, growth and goals, and to articulate how they define student success in school.

In addition to seeking both quantitative and qualitative data around teacher and student experiences, we also convened several stakeholder meetings beyond the core design team. We met with and received feedback from all levels of the district administrative team, including the Superintendent and the Curriculum Coordinator. The team also asked for feedback and preliminary approval from the Curriculum Committee, School Board and Facilities Committee.

As a result of these meetings, we were able to assess the strengths and challenges of our innovation from multiple perspectives, considering student needs as well as teacher professional development. The district facilities team also assessed the feasibility of the proposed structures to determine challenges around constructing the actual learning lab. We have also been in contact with potential greenhouse designers to better understand construction processes and needs.

To better understand the developmental needs of middle-level learners, the design team also read and analyzed "*The Successful Middle School: This We Believe*" by Penny A. Bishop Ed.D., and Lisa M. Harrison Ph.D. We were fortunate to meet in-person with one of the authors, Penny Bishop who recently took a position within UMaine's College of Education and Human Development as Dean/Professor. She provided valuable feedback and will continue to be a partner in this project moving forward.

The RREV design team visited Jonesport Beals High School to learn and ask questions about their newly constructed aquaponics facility. We also visited Herring Gut Learning Center, a leader in aquaponics education, to start an ongoing partnership that will support the Applied Learning Lab design, construction and implementation.

Prior to finalizing the application, the entire Bucksport Middle School staff/faculty had an opportunity to learn about the Applied Learning Lab and to ask clarifying questions that were helpful to creating the final innovation concept.

Throughout the design process, we reached out to and asked for feedback from a wide variety of stakeholders, both within the school as well as in the educational field beyond Bucksport. All of this feedback was thoughtfully incorporated into our final RREV Innovation concept.

Section 4: Identify Key Expenses

A. Identify the key expenses associated with the preparation, implementation, and ongoing refinement of your pilot.

Expenses could include staff time, materials, professional development activities, facilities, and other related expenses. This section does not need to include specific costs, but rather list out the different costs that should be considered to implement the innovation.

Funding for this project will focus on constructing the Applied Learning Lab space for student learning and building staff capacity to use this space in the amount of $250,000.

The majority of the budget will contribute to the design and construction of the Greenhouse and Kitchen/Makerspace facility. Students in the STARS program will be instrumental in supporting the design, ensuring that the structure and component parts complement the existing outdoor classroom, which was designed and constructed by students throughout SY21-22.

Equipment: $128,096 for purchase of greenhouse, aquaponics system, kitchen, and solar panels.

Contracted Maintenance: $70,000 for sitework, accessibility/landscaping, and utility hookup.

The remaining funds will support professional development in multiple ways. First, stipends for Experiential Learning Guides who will work directly with classroom teachers to connect their core content to extended learning opportunities in the Applied Learning Lab. These three guides will be available for consultation, support and co-teaching for all content areas and specialist teachers. They will also be responsible for the general oversight and upkeep of the Lab. Additional professional development will be provided during the summers through a summer training for EL guides and a curriculum design institute open to all faculty.

Teacher stipends: $16,254 for experiential learning guides, EL guide training, summer curriculum design institute, aquaponics system design & maintenance training.

Contracted training & PD: $30,950 for EL guide training, 2022-23 school year support for EL guides, planning & facilitation of summer curriculum design institute, aquaponics system design & maintenance training, consultation & support during 2022-23 school year for greenhouse design & maintenance consultation, aquaponics system design & maintenance consultation, kitchen design & maintenance consultation.

PD Travel Expenses: $3,200 for lodging related to aquaponics system design & maintenance training.

Administrative costs: $1,500 for grant management.