

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.

Nature Ed

At Spruce Mountain Elementary School, we aim to be a community-centered place of learning that values and inspires all learners. With students in grades three through five, Spruce Mountain Elementary is nestled in the western foothills—a part of Maine with a long tradition of economic and recreational ties to nature.

Spruce Mountain Elementary School is a Title I school with an enrollment of 311. Thirty percent of students qualify for special education services. Like many other U.S. schools during the COVID pandemic, SMES adjusted its programming during the 2020-2021 school year by implementing an asynchronous hybrid schedule. The 2021-2022 school year saw all students back in the classroom, but with social distancing, a few instances of fully remote learning, and large numbers of the student body having numerous days out of school for quarantines. On average, 20 students drop out of school in the district per year. Out of the 600 behavior incidents at SMES in the 2021-2022 school year, the majority happened in the classroom and were overwhelmingly related to failure to follow directions and off-task behavior. The number of truant students has increased by 140% over the past 3 years. Through the use of a universal screener (BASC-3 BESS), we understand that 19% of our students have an extremely elevated risk of behavioral and emotional problems.

Spruce Mountain Elementary School's social worker has been surveying students for 8-10 years about their feelings of safety, satisfaction, and success at our school. Students have consistently expressed a desire to move around more, or be outside more, as part of their school day, rather than being inside and at desks. Students at SMES also identify a strong desire to engage in more hands-on learning.

Over the past few years, the percentage of students indicating that they dislike school has risen in these surveys. At the beginning of the 2021-2022 school year, staff meetings spontaneously generated discussions about student behavior and success, and how we might better promote the latter. Teachers mentioned classroom issues like an inability to work independently or collaboratively, short attention spans, and emotional outbursts.

As a result of these discussions, our principal, social worker, RTI teachers, and some classroom teachers formed a working group to examine diversified educational experiences. This group reflected on some of what we were doing that seemed to be working. Our principal instituted “Fun Fridays,” which are days dedicated to project-based or enrichment activities. In 2019, Spruce Mountain Elementary participated in the Winter Kids Winter Games, and teachers reported feeling that the outdoor activities felt exciting for students and manageable to incorporate in their curriculum. For the past four years, a few teachers at Spruce Mountain Elementary have trained with Purdue’s Nature of Teaching program. They then engaged in a Nature’s Education program with their students. In the process, they recognized students’ immediate enthusiasm and desire to learn. This reflects the research on outdoor education including improvement in problem-solving skills, development of lifelong learning habits, and strong civic responsibility. When asked to write persuasively about how nature’s education has been important to their education, fourth graders wrote: “We learn how to work together and how to be independent,” “Nature Ed calms me down,” and “Nature Ed is the best thing that happens in my week.”

Prior to the pandemic, and increasingly so during it, children have been spending more time inside and with less time experiencing nature. These changes in childhood impact children’s overall wellbeing leading to numerous challenges for children from physical frailty and obesity to more frequent illness to anxiety and lack of emotional control (Becker et al., 2017; Hanscom, 2016; Hauck & Felzer-Kim, 2019; James et al., 2017). Research shows that engaging students in applicable, relevant, and engaging experiences in the outdoors contributes to academic success and environmental literacy—specifically, a positive influence on students’ learning dispositions, skills, and behaviors (Outdoor School for All! 2019 Evaluation Report). It has been observed that “children’s emotional, intellectual, and values-related development, especially during middle childhood and early adolescence, is greatly enhanced by varied, recurrent, and ongoing contact with relatively familiar natural settings and processes” (Kahn and Kellert, 2002). Furthermore, students with ADHD find greater relief from symptoms in a “greener” setting (Kuo & Taylor, 2004). The evidence strongly supports that nature-based learning improves the mental, physical, and academic health of students.

The academic research and qualitative data from student reporting supports outdoor education and 60% of Spruce Mountain Elementary teachers agree with its importance and benefits. Despite this, 70% identified barriers to integrating it with their classes. These barriers included materials, lesson plan ideas that integrate with standards, differentiating for different learning styles, and space. We want to create outdoor learning spaces and offer programming for students and teachers that will enhance their educational experience. Even though our school district has some teachers engaged in outdoor learning, there has been no comprehensive system in place to ensure all students experience the benefits of nature-based education.

Our goal is to create a greenhouse classroom for all students to use, a library of standards-based individual lesson and unit plans, and longer-term projects that allow teachers to engage in outdoor learning at multiple points on a continuum. The greenhouse would serve as a 4-season base from which teachers can access and share materials, as well as link to trails, streams, and other natural settings. Spruce Mountain Elementary will work with The Healthy Community Coalition (HCC) as a community partner. The Healthy Community Coalition (HCC) can offer direct education opportunities for students pertaining to gardening, nutrition, and movement breaks. The HCC can also provide community partnership with compost programs. The role of the staff at the Healthy Community Coalition can work for training and direct education as RSU #73 works to implement the RREV grant.

We are planning this innovation to address the truancy, behavioral, and teacher engagement needs of our school. We have already seen an increase in parental involvement around the Nature’s Ed program in its current iteration. Some parents call to make sure they know the right day for Nature’s Ed so that their child

does not miss it. Students come to school excitedly asking to check on the status of an outdoor project like a rain gauge. When students participated in raising tadpoles, they kept each other accountable in caring for their needs. We noticed students with high energy and low motivation exhibit increased participation in these types of Nature's Ed activities. We believe students at Spruce Mountain Elementary school will be less likely to miss school if they are excited to be there. We also have seen that students who have regular behavioral problems in the classroom view Nature's Ed as an incentive to comply with school expectations so they can participate. Students who were removed from the classroom for challenging behaviors were more likely to regulate and return to the classroom on days when Nature's Ed programming was scheduled. In four years, there have been only a few isolated incidents where any student was removed from Nature's Ed programming due to challenging behaviors. In addition to the positive experiences for students, we want to increase teachers' confidence in planning and executing outdoor education lessons. Our innovation will build on what we have learned over the past few years. New teachers have enthusiastically joined in outdoor lessons. When we have planned for Nature's Ed activities, we have marveled at how organically we are able to connect outdoor learning to the standards we were already teaching. We are confident that creating a library of lessons, building an outdoor classroom, and prioritizing student engagement will make our innovation successful.

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 EIs, 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.

A large percentage of students at Spruce Mountain School District are identified as low socio-economic status (SES). This group of students is considered the most vulnerable and would benefit from our innovation. Research continues to link lower SES to lower academic achievement and slower rates of academic progress as compared with higher SES communities (Morgan, Farkas, Hillemeier, & Maczuga, 2009). Low SES in childhood is related to poor cognitive development, language, memory, socioemotional processing, and consequently poor income and health in adulthood. Low SES and exposure to adversity are linked to decreased educational success (McLaughlin & Sheridan, 2016). Such toxic stress in early childhood leads to lasting impacts on learning, behavior, and health (Committee on Psychosocial Aspects of Child and Family Health et al., 2012).

While students from lower socio-economic status may have the most to gain from an outdoor education program, all students at the Spruce Mountain Elementary School would participate in outdoor learning opportunities made possible by the innovation. As described above, 19% of our students are identified as extremely elevated risk of behavioral or emotional problems. Children with persistent behavioral problems in school are significantly less likely to graduate from high school. Behavior problems can also reduce childrens' participation in collaborative learning and adversely affect their achievement (Duncan and Murnane, 2011.) Attention problems, delinquency and substance use are also significantly associated with diminished achievement (Acton, 2013). Our innovation and partnership with HCC will include opportunities for extended learning that directly target some of the needs of people with lower socio-economic status including: composting, economics, food security, and self-sufficiency.

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.

There are several goals of our innovation:

Goal 1: 100% of students and teachers will participate in at least one or more outdoor learning experiences in 2022-2023. These experiences will be on-site at identified outdoor learning spaces as well as in the nearby fields, swamps, trails, and forest. Students will have opportunities to utilize a variety of tools and materials to enhance and extend their learning. Students will be active and engaged participants in these experiences with anecdotal data collected and self-reported on engagement and enjoyment levels with at least 75% of the student population improving attendance by indicating engagement and enjoyment from participating in outdoor activities.

Goal 2: We will install a greenhouse in close proximity to our main school building. The intention is to use this space for growing plants, but also to serve as a base for outdoor education lessons. Near the greenhouse location, we have 2 existing rustic outdoor classrooms, as well as access to a swamp, forests, and trails on our campus. We intend to utilize this space to store shared materials, as well as a place for learning in natural light and warmth during the cold and dark of winter.

Goal 3: This innovation will produce a library of standards-based lessons, units, and projects focused on the outdoors for teachers to use. Teachers at Spruce Mountain will report increased levels of comfort and participation in outdoor learning. We hope the majority of these will provide extended learning opportunities so students can apply what they learn in the classroom in their personal lives.

Goal 4: This innovation will reduce behavior infractions by 25% and increase attendance by 15%. Student achievement scores will increase by 10%. The number of students identified as extremely elevated risk will decrease by 25%.

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.	Survey Staff	Interest and willingness to participate in PD	P	6/2022	Jenn Stone - Social Worker
2.	Secure funding	Will need funds to implement all components of this grant	P	8/2022	Leadership Team: Pat St. Clair - Principal, Jenn Stone - Social Worker, Tammy Deering - Classroom Teacher, Sarah Dyer - Classroom

					Teacher, Kathy Doyon - Healthy Community Coalition
	Build stakeholder awareness -Teachers - School Board -Parents -Community Members	Building stakeholder knowledge of the research supporting outdoor learning and the benefits of developing children's social-emotional, physical, and cognitive growth	P	Ongoing	Leadership Team
3.	Work with contractor for site identification and preparation	Design and plan greenhouse installation	P	9/2022	Principal, Facilities Director
4.	Purchase and install greenhouse	4-season base for outdoor learning	I	11/2022	Principal, Facilities Director
5.	Professional Development	Grade and department level representatives receive PD	I	12/2022	Leadership Team
6.	Establishing routines, policies, and processes	Universal understanding of purpose and use	P	12/2022	Leadership Team
7.	Creation of Stipend Position/Coordinator	District approval of coordinator to facilitate use of space, materials, and training	P	9/2022	Principal, Curriculum Director, Superintendent
8.	Posting and hiring of coordinator position	Paid staff to facilitate use of space, materials, and training.	I	9/2022	Principal, Curriculum Director, Superintendent, Human Resources
9.	Creation of library/database of units and lessons	This easily accessible library will store standards-based units and lessons.	I	3/2022	Leadership team, Curriculum Director, Stipend Coordinator
10.	Purchase materials	Materials for outdoor learning activities	P	3/2022	Leadership team, accounting
11.	Professional Development - All	Representatives who received direct PD on outdoor learning will provide to the rest of the staff.	I	3/2022	Grade and department level representatives, Leadership Team

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).

Within the first year, we expect to see several outcomes as a result of our innovation:

- We will see a 25% increase of our teachers reporting confidence with planning and teaching integrated units of study which incorporate the outdoors.
- We will see a 30% decrease in truant students.
- We will see a 15% reduction in behavior reports across all three grade levels.

After the first year of our innovation, we expect these outcomes continue, with these additional outcomes:

- We will see increased community involvement in our outdoor learning programming as evidenced by volunteer activity and more community partnerships.
- We will attract more, and more qualified, candidates for open positions at our school as evidenced by more applications for open positions.

- 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.	1.Universal Behavioral Screening	B, I	3x/ year	Social Worker
2.	NWEA	B, I	3x/ year	Classroom teachers
3.	Truancy reports	B, I, S	annually	Administration
4.	Teacher satisfaction survey	B, I, S	2x/ year	Administration
5.	Review 360 Behavioral Data	B, I, S	ongoing	Teachers, Administration
6.	Student Satisfaction Survey	B, S	2x/ year	Social Worker
7.	Observations of students and teachers	I	ongoing	Teachers, Administration

- 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 system changes that this innovation will require and promote.

According to our estimates, it will cost approximately \$4300 per year to sustain our innovation after the pilot year. In order to sustain our innovation, we hope to manage these costs through partnerships with the community and from a commitment of the school board. It will be essential to highlight and showcase the impact on children and staff with other invested stakeholders such as school board members, community members, and parents. Some members of the board have voiced support for adding a budget line item for outdoor education. RSU 73 is also completing a timber harvest on our property. As part of the timber harvest, a location for an additional outdoor learning space would be designated within a small clearcut. Our innovation will be an essential part of recruiting and retaining quality personnel as well as the way to strengthen curriculum and instruction. Teachers will share with families photos and reports of student participation in outdoor education activities. Articles sent to local newspapers for publication will highlight outdoor learning to increase the public's awareness of initiatives. We will use our existing Facebook and Youtube accounts to share our work on social media. Through their stipend position, the coordinator and leadership team will work with community partners and access grant opportunities to replenish supplies and improve materials. The Healthy Community Coalition, in addition to providing free and ongoing lessons, has committed to some grant funding toward our efforts as well.

- 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.

We believe our innovation will be successful based on data collected from and conversations with stakeholders at all levels.

Recent student satisfaction surveys indicate that students enjoy learning in an outdoor environment. Among those who have not participated in any outdoor education, they still positively endorse being outside. Because of this, we believe students will be engaged in outdoor learning activities.

School administration and facilities staff have committed to allocating time to purchasing, installing, and maintaining the greenhouse and other outdoor learning environments. The district is currently in the process of selectively cutting timber adjacent to the elementary school and has committed to building a platform for various learning activities.

Teachers have agreed to participate in training and begin incorporating outdoor education in their curriculum.

Our community partner, The Healthy Community Coalition has agreed to provide direct education opportunities for students pertaining to gardening, nutrition, and movement breaks. The HCC can also provide community partnership with compost programs.

During the planning process, the leadership team made revisions to our original plans based on feedback from stakeholders. The most significant revision was to include a stipend Nature Ed Coordinator position, and to prioritize the creation of curriculum that is accessible and easily implemented by educators.

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.

Professional Learning Materials: Books (Messy Math by Juliet Robertson; Dirty Teaching by Juliet Robertson, etc)

Preparation: \$1000

Implementation: \$3000

Sustaining: \$300 per year

Professional Development:

Preparation: \$5,000

Implementation: \$1,000

Sustaining: \$1,000 per year

Outdoor Gear (rain gear, winter gear, snowshoes, sun hats, storage units for materials, wagons/sleds for transporting teaching materials to outdoor spaces, etc.)

Preparation: \$4,000

Implementation: \$25,000 first year

Sustaining: \$1000 per year

Site Development and Greenhouse installation:

Preparation: \$3000

Implementation: \$57,000

Sustaining: \$1000 per year

Coordinator - Stipend Position

Preparation: \$0

Implementation: \$1000

Sustaining: \$1000 per year