

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.

Gardiner Area High School needs to change the instructional method of their freshman earth science course to rebound from alarming negative trends. Similar to what other districts are experiencing, we note average grades declining, failures increasing, academic growth decreasing, disengagement increasing, and a large increase in social/emotional issues. Research correlates excess screen time and isolation inside due to the pandemic as leading factors. This was particularly true for our students with limited resources as they were unable to access or participate in any experiences outside of their homes.

Surveyed students in our school report higher levels of anxiety and note the loss of school-based services during Covid seemed to exasperate the issue. Disengagement was rampant. Students simply stopped engaging with staff and other students. At the first staff meeting of the year, we trained on suicide prevention and departments made goals to address social-emotional wellness. Teachers tried gratitude journals, mindfulness breaks, short check-ins using emojis, self-care practices, and other creative ideas to help students control emotions. Staff were willing to try anything because if we are unable to solve these problems, the students of MSAD #11 will have everlasting health and wellness issues.

With a desire to right the ship, a grant was written to purchase bagged chairs, magnetic clipboards, markers, and easels to bring classes outside. Shockingly, several students needed assistance on how to get the chair from the bag as they had never had the opportunity to use one. Students, many who had struggled with traditional forms of instruction and assessment, showed improved behavior when outside and greater interest in the lesson. Students began asking to go outside explaining they felt less stressed, more creative, and able to complete more work. When finals rolled around, freshmen scored better on the hands-on unit taught outdoors versus the other three units taught inside. It was at this time, we clearly understood the need to move to an outdoor performance-based instructional

approach that incorporates experiential learning. The plan to have every freshman spend 75% of earth science class outdoors will reverse the negative trends by:

- providing a real-world context for earth science
- making learning more engaging
- exposing students to new opportunities and experiences in an outdoor setting
- improving student health and wellness
- eliminating the socio-economic barriers
- eliminating barriers for those with disabilities
- implementing a challenging, meaningful, performance-based education

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.

This innovation is intended to improve the health/ wellness and academic performance in science for our students, but initially freshmen, by changing the instructional method. Grade 9 is the crucial year to establish a foundation for learning and new opportunities. A number of the issues experienced by our students had a direct connection to the decline in student success. Covid brought on unprecedented learning situations that caused significant disparities.

Local statistics:

- Freshman earth science data from the last three years (pandemic to current year)
 - 91.6% of students taking honors earth science passed
 - 2019 - 2020: 86%
 - 2020 - 2021: 94%
 - 2021 - 2022: 95%
 - average: 91.6%
 - 79% of students taking essentials earth science passed
 - 2019 - 2020: 80%
 - 2020 - 2021: 82%
 - 2021 - 2022: 75%
 - average: 79%

The honors students were affected in the first year of the pandemic (86%) but were able to adjust and work through remote learning (94%). Upon return to school, their passing percentage continued to improve (95%).

While the essentials students had been comparatively close with accommodations (86% vs 80%), they have not been able to rebound nearly as well. Honors students were able to jump 8% during remote learning but essentials only saw a 2% increase in successful completion of the class. Clearly, the most critical issue is that the honors students are continuing to improve (by 1%) while the essentials had a significant decline of 7%. The 12.6% success rate difference between the two groups is alarming.

- Anecdotal observations as a teacher of 28 years in MSAD11: a significant increase in the number of phone calls home and referrals to administration for behavioral issues related to blatant refusal to participate in class, complete assignments, or engage in any way whatsoever. Many parents confirmed similar detachment at home.

In addition to Covid induced detachment, 47% of our students at GAHS are considered economically disadvantaged.

Local statistics:

- Administration at GAHS notes that those that are economically disadvantaged, who would qualify for free/reduced lunch, often refuse to complete paperwork for fear/embarrassment of peers finding out. Administration has tried several gimmicks (drawing for an ipad for all that complete paperwork, gift cards, etc) but still report that high school students perceive this negatively.
- Only 72% of our economically disadvantaged students graduate, a far cry from the state average in 2019 of 87.49%.

Another targeted group, besides our economically disadvantaged, is our population of students with disabilities. When initially piloting an outdoor unit, one student diagnosed with muscular dystrophy was unable to leave the pavement to participate in a bird watching activity. This was not acceptable. In a meeting with our special education department chair, we reviewed the disabilities of our upcoming freshmen to determine what adaptive equipment would be required for successful participation. While the number of students is small, it is imperative they too spend 75% of their earth science course with their peers.

- Only 79.4% of our disabled students graduate - again, not near the state average of 87.49%.

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.

This innovation will benefit every freshman that enters our building by partaking in an engaging outdoor setting to learn earth science and by removing barriers for all students. By removing the school walls, students can move, explore, and learn concepts in a local environment while modeling how science research is generally conducted. This improvement in the quality and depth of learning by experiencing the world around them will help to meet our goals of improved student engagement, increased social-emotional health, and increased student performance.

We plan to achieve our goals by having students spend 75% of all earth science class time outside. Outdoor equipment and apparel will be provided to remove barriers for those who are socio-economically disadvantaged or those with a nature deficit. Adaptive equipment for disabled students will remove barriers and allow all students to participate. Curriculum development will occur in partnership with Teens to Trails, Maine Master Naturalist, Upstream, and Trout Unlimited. With an emphasis on experiential education, students will learn science principles and relevant outdoor skills. Leaders from Trout Unlimited, who train veterans, will assist with techniques for our disabled students. Equally important is that at the end of the course, students will be able to sign out equipment to use after school, on weekends, and during school vacations. Allowing students access to the equipment will level the playing field for those unable to afford it, increase community involvement as parents and their students use their new skills, and hopefully forever erase students unable to remove a chair from a bag.

With the anticipated success of this program, we foresee other science courses, particularly biology, will adapt more of their lessons to include an outdoor component. It is also our intention that as freshmen progress through the high school, an elective course would be added to our program of studies to allow upperclassmen to return as mentors and advisors to the earth science course. The AP Seminar course would continue to evaluate the earth science program as another way for students to participate in real-world science. The success of the "borrowing equipment program" could lead to adult education courses including parents in overnights at our facility for family adventures and learning. Finally, our eventual hope would be to have created such incredible outdoor learning spaces that our community could enjoy the educational sites with identified species, observation centers for exploring, and trails for exercise and relaxation.

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 with department chair and colleagues	<ul style="list-style-type: none"> ● To seek approval for instructional method change ● If schedule could be arranged for all freshman to have one teacher ● Colleague support 	P	May 2022	Sharon Gallant
2.	Meet with principal	<ul style="list-style-type: none"> ● To seek approval for change ● Determine next steps for approval 	P	May 2022	Sharon Gallant, Jackie Pare and Mary Whitten (Dept chair)
3.	Data Mining	<ul style="list-style-type: none"> ● Data mining to support research on outdoor education ● Data mining for student demographics 	P	May 2022	Jackie Pare
4.	Meet with department chair of special education	<ul style="list-style-type: none"> ● Review list of upcoming students and disabilities ● Discuss necessary adaptive equipment needed 	P	May 2022	Jackie Pare, Sharon Gallant, and Maureen Cloutier
5.	Meet with Curriculum Coordinator and Superintendent	<ul style="list-style-type: none"> ● Explain program ● Determine next steps for approval 	P	May 2022	Sharon Gallant, Jackie Pare, Mary Whitten, and Chad Kempton (Principal)
6.	Meet with Curriculum Committee (Sub committee of School Board)	<ul style="list-style-type: none"> ● Seek approval for new instructional approach ● Edit/change program of studies 	P	June 2022	Sharon Gallant, Jackie Pare, and Chad Kempton
7.	Vote by School Board	<ul style="list-style-type: none"> ● Accept recommendation from curriculum 	P	June 2022	Jackie Pare

		committee to proceed			
8.	Meet with Trout Unlimited rep, email with Upstream, re-establish contact with Teens to Trails, and phone call with LL Bean representative.	<ul style="list-style-type: none"> • Creating partnership team • Discuss potential curriculum connections 	P	Ongoing	Sharon Gallant
9.	Identify current topics and how to shift to authentic learning experiences outdoors	<ul style="list-style-type: none"> • Curriculum development 	P	Ongoing	Sharon Gallant
10.	Curate and develop (beg, borrow, and steal) content rich curriculum - continue to edit throughout the year	<ul style="list-style-type: none"> • Curriculum development 	P	Ongoing	Sharon Gallant, Mary Whitten, TU rep, Maine Master Naturalist rep, and other science department colleagues
11.	Invite curriculum guru from Maine Master Naturalist to first inservice day to support other content areas that are interested in bringing students outside	<ul style="list-style-type: none"> • Professional development 	P	Fall 2022	Sharon Gallant and MMNP
12.	Create an impartial evaluation team	<ul style="list-style-type: none"> • Evaluation 	I and P	Ongoing	Sharon Gallant, Raye Anne Desoto, and AP students
13.	Teach units outdoors 75% of class	<ul style="list-style-type: none"> • Planned implementation 	I	Fall 2022	Sharon Gallant
14.	Reflect on lessons, survey students, analyze behavioral data, record assessment data (pre, post, formative, and summative)	<ul style="list-style-type: none"> • Data collection 	I	School year 2022-23	Sharon Gallant and Jackie Pare
15.	Present to School Board	<ul style="list-style-type: none"> • Update on year's success • Note any needed changes 	I	May 2023 (Anticipated date)	Sharon Gallant and Jackie Pare
16.	Present to City Council	<ul style="list-style-type: none"> • Community awareness 	I	June 2023	Sharon Gallant and Jackie Pare (and students)

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).

6 Months: In six months, four sections of freshman earth science classes, from essentials to honors, will be outside 75% of the time working on engaging lessons that not only meet but exceed the State standards. Students will also have participated in several experiential activities (snowshoeing, fly fishing, etc) opening doors to new adventures. As a result, students will be interested in learning, and there will be a noted difference in positive school behavior. Volunteers and other experts will regularly be a part of our classes, and our school culture will begin to shift as authentic, relevant lessons have a positive influence on academic performance. School-sponsored professional development will include integration of outdoor learning for all content areas and opportunities to plan and deliver these lessons. Students will use outdoor spaces as places to regulate emotion and relieve stress as they borrow equipment to bring home over the weekend and during vacations. Socio-economic barriers are beginning to fade as are barriers to our disabled population.

12 Months: In twelve months, **every** freshman in our building has spent 75% of their earth science course outdoors in coursework and experiential learning. The units have been reviewed, rewritten, and adapted based on the data from student surveys, student academic performances, and teacher/administrator reflection. Due to the overwhelming success of the science course, more partnerships have been created to offer even more outdoor experiences. The first trails and learning sites have a quarter of the species identified and people from our community are beginning to use them. Our annual analysis for the School Board shows a decrease in failure rates, an increase in student engagement, and students are expressing that being outside has helped their social-emotional wellness.

2 Years: In two years, having classes outside - not just science - has become the norm. Biology classes have a four-week ecology unit, art classes focus on patterns in nature, and English courses are heading outside for inspiration. This happens because teachers understand the connection between nature and the physical and mental health of our students and no longer see it as “playing” outside. The program of studies now includes an Outdoor Leadership elective for seniors. This course provides mentors to the freshman earth science course as students develop leadership skills through assisting and co-teaching. Students and staff report less stress, anxiety, and depression.

3+ Years: The freshman earth science course is continually being updated to meet student needs. It is an integral part of maintenance for the trails and areas created that are also used by our community. Adult education has courses for families that allow for borrowing of equipment for students to show what they know in planned events held on our campus.

--

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.	Pre and post student interviews	Baseline (Fall and Spring) Interim (Winter and Spring)	Beginning and end of each semester (earth science is a semester long course)	Evaluation team (AP Seminar students will conduct the interviews to eliminate bias and assist in their course work)
2.	Exit tickets	Baseline (Fall and Spring) Interim (Winter and Spring)	During school year	Sharon Gallant
3.	Student academic achievement	Summative (Winter and Spring)	End of each semester	Evaluation team
4.	Student Journal Reflections	Baseline (Fall and Spring) Interim (Winter and Spring)	During school year	Evaluation team
5.	Surveys (Student and Staff)	Baseline (Fall and Spring) Interim (Winter and Spring)	Start and end of each semester	Evaluation team
6.	Student behavior statistics	Baseline (Historical data)	End of each semester	Administration lead by Jackie Pare

		Interim (Spring)		
7.	Anecdotal observations	Interim (Each semester)	During school year	Sharon Gallant and Mary Whitten
8.	National Survey on Drug Use and Health	Baseline (Historical data)	Fall of the school year	Administration lead by Jackie Pare
9.	Evidence of learning	Summative	Throughout the school year	Evaluation team
10	Self-assessment for social-emotional growth	Baseline (Fall and Winter) Interim (Winter and Spring)	Throughout the school year	Evaluation team
11	Video highlights	Summative	Throughout the school year	Video production instructor (Jennifer Clawson)

- 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.

The first year will be a true pilot year focusing on implementing once traditional inside lessons to more performance-based outdoor activities. This moving from head knowledge to application of skills, strategies, and concepts will require continuous review and collaboration with our partner: Trout Unlimited, Upstream, Maine Master Naturalist, and Teens to Trails. These collaborations will not only include curriculum development but also yearly training and workshops with other educators in our building as we build capacity for outdoor learning in all content areas. These partnerships, key to strengthening curriculum and instruction, are also vital for changes in mindsets as outdoor time in our district has been mainly for recess. Our seasoned staff will receive support to sustain the integration of the outdoors into learning.

As the program develops, we will continue to seek additional opportunities to provide experience and training to students. These experiences could include community members showcasing their expertise or former students who, because of this class, return to share their knowledge. This desire for continuous improvement is a true selling point to recruit and hire qualified staff with a background in outdoor education, and perhaps one day, can include kayaking.

As capacity builds and in an effort to sustain this important innovation in the health and wellness of our students, our principal has begun taking steps to build an outdoor structure for those days of inclement weather. With unspent Covid Relief funds, the intent is to place a covered enclosure behind the school.

Long-term financial sustainability is attainable as most equipment will be purchased through LL Bean which has a reputation for quality. The two most significant replacements will be worn out, broken, or lost equipment. The other is the replacement of outdoor wear. As the success of the program increases, weekend trips and excursions for a fee could be offered to community members. These fees would create a self-supporting program.

- 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 very first review went through current students. After a weekend spent revising a hydrology lecture into a complete outdoor lesson, it was ready to be “tested.” Initially, some students were apprehensive about going outside, but that quickly subsided when they learned they were to determine the flow of the stream. Students returned excited, proud of the method they had created, sure of the answer, and a bit damp. This information became the foundation for the outdoor gear request of the grant as several students were not properly dressed and/or needed a change once back inside. Regardless of being told several times they would be outside, a quarter of the class arrived wearing flip-flops or other inappropriate shoes - the only shoes they own.

Directly after the proposal was reviewed by the department chair and colleagues, consensus was quite positive. However a concern arose if this course was “too fun,” students would expect other science classes to use the same methodology. This provided an excellent opportunity for best practices to again be discussed and the seed planted for professional development in the fall to be included in the proposal.

Administrators were the next stakeholders. The principal was immediately on board; however the curriculum coordinator and superintendent were not. A number of issues arose. First, the risk factor of freshmen in kayaks was discussed and that experience was eliminated. Secondly, the timing of the grant and the effect on the staff in the business office was worrisome. While August is a busy month, it was determined this could be squeezed in. Finally, a concern centered around students who don’t like the outside. There will always be students that “don’t like” a subject, but that doesn’t dismiss them from the coursework (ie, math or physical education.) It was negotiated that for the first pilot year everyone would participate and if needed, an indoor course could be added next year.

An informal group of educators outside the building met to review the plan and offer additional tips. Each expressed student health and wellness as the number one concern as a direct result of the pandemic. All are onboard to participate in professional development, curriculum work, and support.

The final hurdle involved the Curriculum Committee. This subcommittee of the School Board was whole-heartedly behind this proposal. One member stated the “need” for this type of learning at the high school, shocked that we aren’t already teaching earth science outside, reinforcing the research. The unanimous recommendation was to accept this change in instructional method and edit the program of studies to clearly describe the outdoor component. The following Thursday, the Board voted to accept the recommendation.

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.

Outdoor gear: This is the equipment for the experiential section of the course as well as classwork. Examples: snowshoes, fly fishing equipment, binoculars, game cameras, shovels, backpacks, etc \$52,000

Adaptive outdoor gear: To accommodate those students with mobility issues. All-terrain wheelchair and spotting scope \$5000

General supplies: This includes material used for everyday class work. Examples: buckets, hoops, stakes, hypsometers, batteries, rulers, journals, med kit, walkie-talkie for office communication, etc \$5,000

Outdoor wear: This includes clothing to be worn in poor weather to assure ALL students can participate. Examples: boots, rainwear, hats, mittens, winter jackets, etc \$15,000

Storage Container: Outdoor waterproof storage shed for all equipment, containers to store all equipment, and a central area to sign out for usage at home. \$8,000

Curriculum development: Adapting current curriculum to outdoor curriculum under Maine’s learning standards. \$10,000

Professional development/consulting fees: Outdoor partners to offer workshops during in-service days and consultation for experiential activities. \$5,000

