

## 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.*

**RSU 10 (MV Bee Academy) needs a way to support students struggling with ACES to access and engage in education, improve attendance, foster and maintain resilience skills, and promote positive behaviors.**

Meroby Elementary and Mountain Valley Middle Schools are located in Mexico, ME. They both have populations where nearly all students have experienced, or are chronically experiencing, Adverse Childhood Experiences (ACES) in their lives. Our students struggle significantly with the effects of trauma, the behaviors related to them, overcoming the trauma barrier to access and engage in learning, and continue fostering their resilience skills. Chronic absenteeism is a large concern at Meroby, and maintaining and improving the gains recently achieved in attendance is very important at MVMS.

At Meroby last year, 72% of students were chronically absent, and 25% were truant. Office referrals ranged from 5-16 referrals each day. We currently have 245 students enrolled at Meroby. Many students receive mental health services or support within the building and during the academic day. Approximately 50% of the student population each year accesses or receives direct services from our mental health support staff. Each year, 15-20 students receive Tier 2 behavior support, and 3-10 students receive Tier 3 behavior support.

At MVMS last year, there was an average of 4.4 Office Discipline Referrals (ODRs) per day. In fifth grade, specifically, there was approximately one ODR per day. Thirty-eight out of 74 fifth-grade students received an ODR throughout the school year. During the 21-22 school year, 7% of students received Tier 2 behavior support, and no students received in-school Tier 3 behavior support. Those who received Tier 3 behavior interventions received those services outside our school. This year's enrollment at MVMS is 370 students.

Meroby began a nature-based education program in 2016 to address the same student needs described above. The impact of going out to the woods to explore, learn, problem-solve, and grow was almost immediately noticeable. We found that our students were happier, more energetic learners. Our students who struggled the most with behavior problems in class found success in the woods. "Woods Days" are days

our students don't want to miss. They look forward to it so much that we have put even more effort into teaching more subjects, including more hands-on activities.

At MVMS, classroom teachers have collaborated with the Gulf of Maine Research Institute, Bowdoin College, Maine Math and Science Alliance (WeatherBlur and TeachME Outside), and the University of Maine 4-H Camp & Learning Center at Bryant Pond to bring nature and place-based educational experiences to students in grades five through eight. These experiences have fostered wonder and curiosity about our local natural environment and promoted a deep-seated connection with our local biomes. As a result, students have become more environmentally conscious and aware of the human impact on our ecosystem.

Meroby Elementary School and Mountain Valley Middle School will team up to create, develop, grow, and expand The MV Bee Academy at RSU10. As a result of our observations on the impact the outdoors has had on our students, we are looking for ways to enhance the practices we already have established. The impact on our students' well-being, engagement, and attendance has been significant.

When presented with the opportunity to expand the outdoor learning program already in place at Meroby using a RREV grant, Kim Fuller (previous MES principal), launched the idea of incorporating Maggie Corlett's love of bees and beekeeping to develop a program that would have significant impact on supporting our students' struggles with attendance, engagement, and traumas. Maggie had engaged several classrooms of learners with her bee talks over the last few years, and Kim believed bees might be the secret ingredient needed to bolster our students. It was unique, truly engaging, and held the power to help students mindfully take on challenges.

Caring for honeybees has the potential to deepen their connection with nature and drive their passion for making positive changes for the future of our planet. It also has the potential to develop a uniquely close partnership with the community that will help build student engagement. A pilot program similar in design to our plan was implemented in Australia, and the results proved very encouraging. The article, *Applied Learning and Community Partnerships Improve Student Engagement in Australia*, states, "Despite the challenges, this case study demonstrates the promising potential to engage adolescent learners through applied learning pedagogy coupled with community partnerships and adds to the current international discourse among educators and school communities about the design and delivery of purposeful teaching and learning strategies that capture the interest of and provide future direction for young adolescents" (Deed, C., Pridham, B., 2012). <sup>1</sup>We believe this model, using an apiary and partnering with the Western Maine Beekeepers Association, could have a similar impact on the attendance, engagement, and well-being of the 4th and 5th graders at MES and MVMS.

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<sup>1</sup> Deed, Craig, Pridham, Bruce, "Applied learning and community partnerships improve student engagement in Australia." *Middle School Journal*, September, 2021.

[https://www.researchgate.net/profile/Bruce-](https://www.researchgate.net/profile/Bruce-Pridham/publication/236792796_Supporting_Adolescent_Learning_and_Development_Using_Applied_Learning_Pedagogies_in_a_Regional_Secondary_School_An_Evaluation_of_a_Pilot_Program/links/57f5bde308ae886b897f8255/Supporting-Adolescent-Learning-and-Development-Using-Applied-Learning-Pedagogies-in-a-Regional-Secondary-School-An-Evaluation-of-a-Pilot-Program.pdf)

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Research shows that beekeeping is therapeutic when used as a mindfulness activity when study participants kept bees to cope with the stress brought on by the COVID-19 pandemic (Alton and Ratnieks, 2021)<sup>2</sup>. We hope our students will benefit similarly as apiary experiences help them cope with their ACES. We hope that beekeeping (where a calm focus is required) will help our students increase their self-regulation skills and transfer this focus to the classroom, making them more successful in their learning. As students have an opportunity to master these skills, we hope to see their attendance increase as their engagement increases. As student engagement increases, teachers have observed that their behavior problems decrease.

Student engagement can often increase by participating in meaningful activities that connect learning with their local community. The Western Maine Beekeepers Association is looking forward to supporting our students in this endeavor and even including them in their Adult Education Bee School. We have observed that when our MES students participate in the SNAP ED's Pick a Better Snack community program, either through classes during the school day or through classes during the WFKA After School Program, they are eagerly engaged. They look forward to their connection with the SNAP ED teachers visiting them. Teachers at Meroby have also observed that when presented with SEL lessons from Safe Voices, the kids respond with more eagerness and excitement than is typical in their normal Guidance lessons. We expect that our 4th and 5th graders will find more engagement as they work with the beekeepers from WMBA.

Similarly, at MVMS, students actively engage in citizen science projects and nature-based investigations that connect them with their local ecosystems. Last spring, while investigating vernal pools, students designed their investigations by developing microcosms to observe vernal pool organisms within our classroom for several weeks before returning them to their pool. Students used what they learned to write articles ("Nature Notes") that they shared with other classes. They were so passionate about this experience that they rescued several amphibious egg masses from a drying vernal pool and then raised and released them once the wood frogs and spotted salamanders reached their terrestrial stage.

In 2025, Meroby, Mountain Valley Middle School, and Rumford Elementary will be combined into one new building. Each school has its own unique culture. RES does not have as many outdoor learning experiences or space opportunities as Meroby and MVMS. It will be a very new experience for members of RES to join the other schools. We expect that the MV Bee Academy will be the glue that helps each school come together in a new way, allowing for a cohesive community of learners instead of three separate entities trying to be under the same roof. This innovation will start the connection process well ahead of the new school's arrival.

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.*

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<sup>2</sup> Alton, K., Ratnieks, F., "Can beekeeping improve mental wellbeing during times of crisis?" *Bee World*, 99:2, 40-43, 2021. <https://doi.org/10.1080/0005772X.2021.1988233>

Our ultimate goal is to impact all students in both schools because we have noticed the significant needs school-wide. We believe this project can significantly help our students improve their attendance, increase their academic engagement, and improve their well-being.

This pilot will focus on the 4th graders at MES and the 5th graders at MVMS.

Last year the 3rd graders (currently 4th graders) averaged 1.65 ODR's per day. 59% of them received in-school mental health services. 73% of them struggled due to chronic absenteeism. Currently, there are 49 4th graders at Meroby. Out of the nine days at school so far, they have already accrued 21 absences and are averaging 2.25 ODR's a day. 43% of 4th graders are already receiving mental health services this year. This group of students demonstrates that they could benefit from something that would engage them in learning and help them focus and calm their emotions and energies.

We would like to allow the 4th graders to lead at the elementary school, gain skills that will help ease their transition to middle school, and empower them with opportunities that engage, challenge, and energize their learning while supporting their significant wellness needs.

Last year the 4th graders (currently 5th graders) were averaging .8 ODR's per day. 81% of that class received in-school mental health services. 71% of them struggled due to chronic absenteeism. Currently, there are 85 5th graders at MVMS.

At MVMS, current fifth-graders will share their knowledge of beekeeping with our school community by creating videos and other media to share with other grade levels. As new fifth-graders enter the school in the following years, they will already have the knowledge and connections to share with the former fifth-grade students and staff. This connection will foster a positive transition between elementary and middle school.

The goal of this project is to engage students in authentic learning experiences where they can learn to collaborate with other grade levels and between the two schools, as well as with WMBA and the local beekeepers. That is approximately 134 students.

The apiary is designed with students with physical disabilities in mind so that they can participate in the apiary experiences. Students whose parents will not allow them to participate in the apiary experiences will still be included in the other activities.

## 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.*

Our apiary aims to provide students with a meaningful outdoor experience to apply to their learning experiences as they develop an authentic community partnership. We seek to determine if meaningful

experiential learning and sharing of their knowledge will increase student engagement and if working with the bees will also improve student well-being.

Short-term goals:

- Improve attendance rates
- Improve student well-being
- Build a partnership with the Western Maine Beekeepers Association
- Practice bee-keeping in the classroom
- Administer the PEAR assessment
- Administer the student well-being survey

Long-term goals:

- Integrate learning about bees into math and literacy instruction
- Develop a summer Youth Bee School
- Students take on the role of bee care and hive maintenance
- Develop and sell student-made honey products

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.

	<b>Activity</b>	<b>Purpose</b>	<b>Stage (P or I)</b>	<b>Date of Completion</b>	<b>Person Responsible</b>
1.	Finding potential engagement and interest	To determine the interest, concerns, and possibilities surrounding an apiary at our school, obtain student and parent feedback	P	5/27-6/20/2022	Maggie Corlett Kimberly Fuller
2.	Begin to build a partnership with the	Introduce partnership possibilities to the club, brainstorm solutions, and	P	5/7-8/17/2022	Maggie Corlett Lacey Todd

	Western Maine Beekeepers Association.	apiary design, and provide a first-hand beekeeping experience to grant developers.			Jodi Ellis Michelle Boucher-Ladd Jessica McMichael Cheryl Gurney
3.	Contact Jennifer Lund.	Learn what other schools have done that have been successful, and get contact info for these apiaries.	P	5/13/2022	Maggie Corlett
4.	Contact Scott Holmes to determine the best apiary location.	Determine if the location found by WMBA will work with the future building project.	P	6/2/2022	Kimberly Fuller
5.	Interview Laurie Martin, Georgetown Elementary teacher.	Learn how to address concerns and manage beekeeping and student management.	P	5/17/2022	Maggie Corlett
6.	Get bids	Get bids needed for fencing and concrete base, shed, and area prep.	P	7/15/2023	Maggie Corlett
7..	Find support at MVMS	Contact teachers to help with specific project elements and glean their ideas.	P	6/30/2022	Lacey Todd
8.	Contact technology teacher.	Contact the technology teacher to obtain help with for-profit student-created website design and maintenance.	P	6/30/2022	Lacey Todd
9.	Contact district technology and finance staff.	Contact district technology and finance staff to learn about rules and regulations regarding advertising and the for-profit website.	P	6/30/2022	Maggie Corlett
10.	Contact literacy and math specialists	Contact literacy and math specialists to glean ideas on additional inclusion or other projects students could do with this innovation.	P	6/30/2022	Lacey Todd
11.	Design a logo	Design a logo that can be vinyl/ ink printed/stamped into the concrete for the project.	P	10/2023	Jessica McMichael

12.	Design/develop/create expectations for behaviors poster.	Design/develop/create expectations for behaviors poster using the Portrait of a Graduate design created by RSU10, so that common language and expectations are shared.	P	1/2023	Lacey Todd, Michelle Boucher- Ladd Maggie Corlett
13.	Have a sign made for the apiary.	Make a sign on the poster stating expectations of behavior to be displayed inside the apiary.	P	1/2023	Lacey Todd
14.	Have students take the PEAR assessment.	To get baseline/mid year/yearly data for student engagement.	P, I	10/31/2022	Maggie Corlett Lacey Todd
15.	Have students take the Student Well-being Survey.	To get baseline/mid year/yearly data for student well-being.	P, I	10/31/2022	Maggie Corlett Lacey Todd
16.	Present project before the school board.	Tell the school board about our project.  Students will jointly present to the school board what they have learned and will be doing.	P  I	9/2022  2/2023	Maggie Corlett Lacey Todd WMBA/AI Borcelli  All of us
17.	Students will present at WMBA Bee School.	After learning about beekeeping, students will design a presentation shared at a WMBA Bee School class. A version or part of the presentation will be taken to the Farmington Fair and included in the WMBA booth. If possible, students will be allowed to participate in the booth and knowledge-sharing experience on "School Day."	I	2/2023 9/2023	Maggie Corlett Lacey Todd Michelle Boucher-Ladd Jodi Ellis Cheryl Gurney
18.	Build apiary and shed; teachers assist as needed.	The building will be completed by 5/31/2023.	I	4/2023	Maggie Corlett Lacey Todd
18.	Order bees, hive supplies, queen rearing supplies, and safety gear.	A local beekeeper will order bees. Hive supplies will be ordered through Humble Abodes (using Maine wood from Irving).	I	2/2023	Maggie Corlett Lacey Todd WMBA/AI Borcelli

		Safety gear and queen rearing supplies will be ordered from Betterbee.com.			
19.	Label items with the logo.	Screen print, vinyl, stamp all items with the logo.	I	5/2023	Lacey Todd, Michelle Boucher- Ladd Maggie Corlett Jessica McMichael
20.	Display and sell student products on a for-profit website.	Have students create, collect their creations and display and sell student products on a for-profit website.	I	5/2023	Lacey Todd, Michelle Boucher- Ladd Maggie Corlett Jessica McMichael
21.	Practice beekeeping in the classroom	Have students practice with simulations, empty hives, and protective gear as preparation for going out to the apiary.	I	5/2023	Lacey Todd, Michelle Boucher- Ladd Maggie Corlett Jessica McMichael
22.	Install bees in hives.	Students will help build hive boxes, set up an apiary, and install the bees.	I	5/2023	Maggie Corlett Lacey Todd WMBA/AI Borcelli
23.	Youth Bee School	A summer Youth Bee School will be started to coincide with the summer beekeeping/bee health needs.	I	6/2023	Maggie Corlett Lacey Todd WMBA
24.	Bee Care/Apiary Maintenance	As time passes, students will help winterize hives, treat mites, and maintain the apiary and safety gear to start again in the spring.	I	7/2023.....	Maggie Corlett Lacey Todd

### 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).*



Our apiary aims to provide students with a meaningful outdoor experience to apply to their learning experiences as they develop an authentic community partnership. We seek to determine if meaningful experiential learning and sharing of their knowledge will increase student engagement and if working with the bees will also improve student well-being.

We will measure our expected outcomes by tracking chronic absenteeism in the 4th and 5th grades using the PEAR assessment to measure student engagement. The Panarama Student Well-Being Survey will provide the data we need to determine our quantitative outcomes.

- Overall attendance will improve by 5%.
- After determining a baseline for the PEAR assessment, we will build our long-term goals.
- After determining a baseline for the Panarama Student Well-being Survey, we will build our long-term goals.
- Students will visit the apiary and the observation hives at least three times before the end of the school year.

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.*

	<b>Data Type</b>	<b>Baseline (B) Interim (I) Summative (S)</b>	<b>Frequency of Data Collection</b>	<b>Person(s) Responsible for Collection and Data Quality</b>
1.	Attendance record for 3rd and 4th grades from 2021-2022 (this year's 4th and 5th graders).	B	1 time at the beginning of the project as the baseline for growth.	Maggie Corlett
2.	Attendance record for 4th and 5th grades.	S	1 time, taken at the end of the school year 2022-2023.	Maggie Corlett Lacey Todd
4.	PEAR engagement assessment.	B S	2 times to track student engagement	Maggie Corlett Lacey Todd
5.	Student Well-being survey	B S	2 times to track student-reported well-being	Maggie Corlett Lacey Todd

- 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.*

**Long-term financial sustainability:** To have the funds to replace beehives that die over the winter, suits, other equipment that may need to be replaced or added to (including jars for honey processing/selling), and other unforeseen expenses that are likely to come up, money will need to be raised or made through sales of apiary products (honey, wax products, queen bees), and any other bee-related product made by the students (books, art, etc.). A special fund/account will need to be established for this purpose.

The sale of queen bees will be of particular importance as this will also provide a much-needed product/service to the local community of beekeepers. At this time, beekeepers must go many miles to purchase replacement queens for their hives. Currently, queen bees can be sold for \$55 each, which will be very helpful in providing a decent amount of income to the apiary.

If funds are too low to purchase needed supplies or bees, local business sponsorship and/or fundraising will be done.

**Policy changes:** Beekeeping at Meroby and MVMS will become a “program.” It will require its way of tracking finances. All students will be included, but some parents may opt their children out of full participation in this program (all students will still be included in learning about the bees and sharing their knowledge, but parents can opt out of the activities within the apiary). There will need to be a way for the students to develop, maintain, and advertise a for-profit website

**Changes in mindset:** The first change will be to help students and staff become more comfortable and familiar with bees and other pollinators. This will be achieved through lots of academic learning, practical learning, exposure to local beekeepers, and experiencing bees in different ways. The more exposure and familiarity we can build, the more comfortable everyone will come. Another mindset change will be that students will actively care for their health, safety, and needs instead of observing bees. They will also be playing a role in the community, so instead of being just kids, they will become experts with the opportunity to help others using their knowledge.

**Capacity-building activities:** Beginning this first fall without bees, the 4th and 5th graders will be learning as much as they can about bees, beekeeping, and pollinators. The rest of the grade level classes at Meroby will be included in beekeeping, with visits to the hives and classes taught by the current 4th graders. At MVMS, the 5th graders will mentor the other grade-level science classes with visits to the hives and classes taught by the 5th graders. Both the 4th and 5th graders will be invited to teach their prepared lessons to the WMBA Adult Education Bee School in the winter. They will also develop a website to sell their handmade items and hive products, a newsletter that shares apiary updates, and products to sell.

When the new school is built, and the schools are combined (2 elementary, one middle school, and a CDS preschool), inclusion in the beekeeping will occur through: visits to the apiary, classes taught by the 4th and 5th graders, brainstorming sessions in ways they would like to help the bees (ex. planting pollinator-friendly plants, counting/observing/tracking bees observed on school property, etc.), honey tastings, and invitations to Youth Bee School.

- 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.

I interviewed teachers at all grade levels about their thoughts on beekeeping and engaging their students about it. I interviewed an ed tech which supports a student with significant mobility issues. The Western Maine Beekeeper's Association was interviewed, visited, and viewed the desired location and helped brainstorm logical apiary designs for the location and roles that the students can play within their Region 9 Bee School. I spoke with Jennifer Lund, Maine State Apiarist, to get information on having bees on school properties as she knew about all of the other schools in Maine that currently have beehives registered with the state. We visited with the Building and Grounds director to be sure that the apiary location would be sustainable, manageable, and not have to be moved when the new building is built. I visited 3rd-grade classrooms to hear directly from the students starting the program. I interviewed Laurie Martin, the teacher in charge of the beehives at Georgetown Elementary, who helped me with my questions. Also interviewed were several Meroby students' parents volunteering during Field Day. Also contacted for feedback and ideas was a neighbor of the school who is a lawyer in a local law firm, a beginning beekeeper with ties to WMBA, and a parent of 2 students who are currently at the middle school (the middle school shares the property with Meroby).

**Grade level teachers:** All thought it was an interesting idea/prospect and had ideas on ways beekeeping and pollinators could be incorporated into their units or studies they already did. They were all wondering what it would look like when the kids were out at the apiary. This wondering made it clear that we will also need many different suits of different sizes and grown-ups. Also, additional help from a local beekeeper will be necessary to manage student behavior and bee care, especially at first.

**Western Maine Beekeeper's Association (WMBA):** I introduced my ideas and the possibility of this project happening at one of the club's Open Hives (attended by 18 beekeepers) in May. The response was overwhelmingly positive. Ideas were gathered about apiary design, incorporation of kids in the bee school, ways to make the school hives economically self-sustaining, book suggestions for kids, suit needs, ways the club beekeepers can support the school hives, and excitement over the possibility of having a home for club hives that is only 2 miles from the location of the bee school (Region 9 building). They were very excited to form a partnership with the school to grow young beekeepers and be more available and visible to the community through this partnership. A club member visited the school grounds and helped me determine the best location for the apiary and the work needed to make it better for the bees. Their idea was to have the kids raise and sell queen bees, besides honey and wax products. Their guidance has helped determine how large to design the apiary, the shed to house the equipment and suits, and encouraged me to keep striving forward with this project. Educating beekeepers is one of the club's foremost goals; they energetically take it seriously. Another member donated a large bucket of honey and a big block of wax so that products could start being made, labeled, and sold. They are excited to get this project up and running with the students.

**Jennifer Lund, Maine State Apiarist/Inspector:** Jennifer Lund is our state's only apiarist. She gave me descriptions of hives at six different Maine schools and the names of those who lead the beekeeping instruction at those schools. She also encouraged the progression of this project.

**Scott Holmes, RSU10 Building and Grounds Director:** Scott gave us the approval for the use of the site recommended by WMBA to allow for the permanent location of an apiary despite future construction at the new school.

**3rd-grade classrooms:** The incoming 4th graders were led through a Know/Wonder brainstorming activity about beekeeping. First, they were asked what they already knew about beekeeping. It was surprising how much correct information they were able to share about the practice. Several students had experienced beekeeping with their grandparents. They were told that this project was in the works and that they might

have the opportunity to learn how to be beekeepers next year. Using that knowledge, they were asked to share what they wondered about and facts they wanted to learn. . Their questions were very revealing. They clearly were excited about the prospect of learning how to be beekeepers and how they could help the program grow. Someone asked each group, “How do we even get this started?” Once safety aspects were discussed and questions answered (Will there be enough suits for everyone? Will there be a fence to protect the hives? How exactly does a bee suit work?), then the students wanted to explore ideas on how they were going to be sure the bees made lots of honey. Each group was asked why they weren’t scared about being beekeepers. Students responded with comments like, “When you’re so excited to learn something, you don’t have time to be scared.” When asked how they would feel about sharing the information they learn with grown-ups at bee school or with other students, students once again lit up with ideas on how they could accomplish goals and projects they could become involved in. These interactions with the 3rd graders helped me better understand how to incorporate more detailed and practical lessons on beekeeping, that the energy to learn was there, and that these kids absolutely loved the idea of contributing to their community in a meaningful way.

**Laurie Martin, Georgetown Elementary:** I met Laurie Martin at a Maine State Beekeeper’s Association annual conference. She brought her class and had them share about their experience starting beekeeping at Georgetown Elementary about four years ago. After their presentation at that state conference, it was clear how beneficial, engaging, and feasible beekeeping was in an elementary school. Bees were kept at one of RSU10’s high schools for a while, and I had visited with that teacher in charge of them a few years ago as well, but the elementary perspective Laurie shared with me was very valuable. She helped me address questions and concerns about insurance coverage for bee stings, fears of students being stung, and other concerns grown-ups tend to present. She gave me detailed descriptions of how she works with kids and bees simultaneously, how to manage the struggles of paying for bees with district payment regulations, and the value of local beekeepers’ assistance.

**Parents surveyed:** A survey was shared with parents on the Meroby Facebook page to determine their thoughts and concerns regarding this project. 95% of the parents favored this project at Meroby and many left messages about how excited they were about it. One parent felt it would be better off campus because of student allergies to bees. This made it clear that there needed to be an option for parents to opt their students out of apiary work. Speaking with a few parents during our Field Day, all of the parents spoken to were excited about this new outdoor learning opportunity for the Meroby students. They all shared that they are very excited, pleased, and proud of the outdoor learning that has become so central at Meroby Elementary school.

**Neighbor interview:** One of the school’s neighbors is a lawyer in a local firm, a new beekeeper, and a member of WMBA. Her daughters both go to school at the Middle School (also Meroby’s neighbor), and she was pleased about them having this opportunity in their school once the new one is built. She also expressed a willingness to help with the care of the hives in the apiary. She had some connections she was going to pursue to see if it would help give more ideas on ways to make the apiary more financially sustainable. One of her ideas was to have a local business sponsor a hive.

**MVMS Principal:** I communicated with Cheryl Gurney, MVMS principal, to see if this project would be something that could be expanded to the middle school grade levels immediately. She was willing to help and contacted Lacey Todd to see if she would be willing to play an active role in this project.

**MES Principal:** When Maggie met Jodi Ellis, the new MES principal, she quickly worked to get Jodi on board. Jodi was very excited about the project. She even visited an apiary and was surprised how quickly her fear of bees subsided when she had her bee suit on.

**RES Principal:** The Rumford Elementary principal, Carrie Luce, was recently hired by RSU10. Jodi and Cheryl are very excited to get her on board. We believe she will be able to help us find a way to include RES in the apiary program so that when all three schools merge, beekeeping is a common experience for all students.

**Adding more teachers:** After Lacey joined the project, more teachers from both schools were approached and included in the planning/design of this project. Several of them were very excited about the project but didn't want to be a part of the development stages. Librarians are adding more books on beekeeping and pollinators to the libraries, and product design ideas are abounding.

**Technology and Finances:** We reached out to Brian Carrier in the Technology Department and Leah Kaulback, the District Business Manager, to see about a for-profit website. They have met together and will be providing us guidance on how to use the PayPal account already set up in the district in connection with the website.

#### 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.*

Honey and wax processing: \$1800  
Building, concrete, cage: \$77,756  
Hives, equipment: \$7,700  
Security: \$250  
Instruction books: \$840  
Beekeeping suits: \$11,654