

Dear Fellow Teacher,

The unit you will find here uses a project-based learning structure that asks students to investigate the driving question: How does weather impact the way we grow food? Throughout this five week unit, students will master both mathematics and English Language Arts standards. Specifically, students will focus on the standards that require them to apply measurement skills, collect and analyze data, apply knowledge of numbers and operations in base ten, and engage in collaborative conversations with their peers. Due to the nature of project-based learning, this unit can also address some second grade standards for students who are ready to go deeper into the content. At first glance, this unit may seem overwhelming or unrealistic for first graders. But, as a teacher who has implemented this unit with my own students, I want to assure you that first grade students are capable of this work. I also wanted to provide you with some additional information about the tasks students will perform throughout this investigation, and the way the unit unfolds, to guide you as you implement this unit – or portions of it– in your own classroom.

Daily and Weekly Tasks throughout the Unit

Throughout the unit, students will engage in two daily tasks: collecting weather data, and recording their thoughts and findings about the investigation on a backchannel, blog or journal (<https://todaysmeet.com/>). This backchannel not only allows students to practice informational writing, but also provides an avenue for parents and school community members to see what their children are learning and pose questions related to their research.

At the end of this unit, students can use these entries to create a digital flipbook (<http://www.flipsnack.com>) to share with parents or community members. As an alternative to the flipbook, students can make a documentary using iMovie that highlights the concepts they learned and practiced during the investigation.

How the Unit Unfolds

The unit begins with a discussion related to the driving question. Following the discussion, students will form a hypothesis based on possible prior knowledge of plants and gardens. If some students lack prior knowledge to form a hypothesis, encourage them to develop a hypothesis as they learn more.

Next, students begin to collect and analyze data. At the beginning of the unit, students will use resources like the *Farmer's Almanac*, George Washington Carver's Bulletins, state park websites, and visits with a master gardener to determine which plants thrive in Georgia. Groups of students will research plants that thrive in specific regions of Georgia and present their findings to the class. Then, students can generate QR codes (www.goqrme.com) and build an interactive regional map of Georgia.

With this information, students can now determine which fruits and vegetables will actually grow where they live and begin planning their garden. To support students in this task, discuss with them the meaning of a

sustainable garden, and guide the students in using research tools (iPad apps such as Veggie Calculator and Veggie Calendar) to determine how many plants they should grow. Students will work in pairs to determine how many plants they will need for their garden and present their findings to the class.

Once students have collected materials for gardening through donations or fundraisers, it is *almost* time to begin planting. Students should first research how much space each plant needs in order to grow. Students will collect and apply this information to determine if there is enough room in the garden for their plants. To guide students in this process, provide student pairs a large piece of butcher paper and ask them to draw their plants with proper spacing. From this activity, students can determine if the garden has enough space for their plants. This portion of the unit is a great time to assess each student's ability to use nonstandard and standard measurement tools, and to see if they understand the relationship between distance and units. Students should be able to choose a measurement tool and accurately justify their selection. Groups can record this thinking on their blog, journal or backchannel.

After students complete this planning and plant their garden, they will continue to collect weather data and begin to collect plant growth data each day. Students can use this data to analyze and determine what factors (amount of rainfall, sun, etc.) may have contributed to the growth or decline of their plants. Encourage your students to collect this data even after the unit ends.

Final Thoughts

While this letter provides you with a basic overview of the unit, I encourage you to check out the project calendar and supplemental materials to gather more information about this unit. To see examples of this investigation in action, along with student work samples, feel free to [visit my website!](#)

Finally, I want to share with you that, at the end of this unit, my students not only had a greater understanding of key mathematical concepts, but were also eager to share and apply their knowledge outside of the classroom. I would often catch students outside pulling weeds or nibbling on the basil in the garden. My students were so excited to share what they had learned, they even organized a PTO Math and Science night that included a garden tour and iPad gardening apps demonstration. I hope that, as you try out this unit with your own students, you will notice this same growth and excitement for learning in your own students. It is truly amazing what our students are capable of!

Sincerely,
Amanda Cavin
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