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Ideas Unlimited

Innovation and Creativity Live in Your Classroom

by Dr. Laura Hasselquist

"I'm not creative." It's one of the most common things I hear from teachers—and it couldn't be further from the truth. We often make the mistake of thinking creativity requires a paintbrush or a trip down the craft aisle. But in reality, creativity appears in countless big and small ways in every classroom, every single day.

A teacher might start the morning by turning a difficult concept into a hands on activity—a simulation, a story, a quirky metaphor—anything that helps students feel an idea instead of just hearing it. And just when the lesson seems perfectly planned, the projector flickers out or a class walks in with a totally different energy than expected. So the teacher pivots, adjusting on the fly and building a new activity in the moment. That kind of flexibility is its own form of artistry.

Throughout the day, teachers weave creativity into their instruction through differentiation. They adjust assignments, offer choices, and create different pathways so every learner can find an entry point. One student might show their understanding through a podcast, another with a model or drawing, and another through writing. Teachers pull in music, visuals, stories, or pop culture references—not as gimmicks, but as bridges to learning.

In quieter moments, creativity reveals itself in the way teachers build community. They craft routines that help students feel they belong, design discussions that bring every voice into the room, and use humor strategically to lighten a long day. They learn who their students are—what they love, what challenges them—and those insights shape their instruction.

Even assessments reflect creative thinking. Instead of relying solely on traditional tests, teachers design performance tasks, portfolios, and projects that allow students to demonstrate understanding in meaningful, authentic ways. Creativity isn't about making things flashy; it's about creating opportunities for students to think deeply, apply skills, and take pride in their work.

By the end of the day, the classroom might look ordinary to someone passing by. But beneath the surface is the quiet, constant work of a teacher imagining: How do I reach this student? How do I make this concept come alive? How do I build a space where every learner feels capable and seen?

And it's in those questions—not in the posters or the projects—that a teacher's creativity truly lives.

This issue is full of some of the best, brightest, and most innovative ideas from agriculture teachers across the country. Within these pages, you'll find the National Association of Agricultural Educators' Ideas Unlimited Award winners from 2021–2024. I'm proud that, moving forward, *Ag Ed Magazine* will serve as a repository for all winning Ideas Unlimited entries.

But this collection exists only because educators were willing to share their creativity by applying for the award. Applying for awards isn't always comfortable, but the process can be a meaningful moment of reflection. NAAE and state associations offer many programs that recognize teachers across a wide range of areas. So the next time a call for nominations goes out, consider putting your name—or someone else's—forward. We all work with deserving teachers. This is a chance to recognize them.

As you read through these ideas, I hope you feel inspired to try a few in your own classroom. And maybe, just maybe, you'll consider submitting one of your own ideas to the Ideas Unlimited Award.



Laura Hasselquist is an associate professor of agricultural education within the School of Education, Counseling, and Human Development at South Dakota State University. Her work focuses on preparing future agriculture teachers to implement hands-on, minds-on instructional practices. She currently serves as the editor of ***The Agricultural Education Magazine****.*

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Unlimited Possibilities Through Innovative Ideas

by Dr. Erica D. Summerfield

As educators, we are constantly searching for new ways to spark curiosity, deepen understanding, and connect learning to the real world. Agricultural education has always been a natural home for creativity, a place where hands-on problem solving, community engagement, and leadership development come together to create meaningful learning experiences. Every day, teachers in this field turn ordinary moments into opportunities for innovation. The Ideas Unlimited Award celebrates that spirit by recognizing educators who transform everyday classroom challenges into extraordinary teaching practices.

This issue highlights several years of Ideas Unlimited award-winning projects (2021–2024), offering a window into the remarkable ingenuity happening in agriculture programs across the country. From interactive lab activities that make complex concepts accessible, to student-led initiatives that encourage ownership and responsibility, to creative assessment tools that bring learning to life, these projects demonstrate that innovation does not rely on unlimited resources, only unlimited imagination. Many of these ideas emerged from simple questions or classroom needs, yet they grew into powerful strategies that better engage students and strengthen agricultural programs at all levels.

What makes this issue particularly special is that the feature stories were written by my students in a public relations writing course at South Dakota State University. Over the course of the semester, each student studied a teacher's Ideas Unlimited Award application, identifying the inspiration, purpose, and impact behind the idea. They then transformed that information into a narrative that captures both the creativity and the heart behind each project. Through this collaboration, my students developed their storytelling and interviewing skills while also gaining a deeper appreciation for the everyday dedication of agricultural educators. Many shared how eye-opening it was to see the thoughtful planning, innovation, and passion that teachers invest in their programs.

This partnership also helped my students see the broader value of agricultural education beyond the classroom. They learned that innovation in this field is not only about new technology or elaborate lesson plans, it is often about finding fresh ways to make learning relevant, accessible, and exciting. Whether it is building community connections, redesigning an activity to reach more learners, or helping students discover their own strengths, these educators show that creative teaching can happen anywhere.

As you explore these pages, I hope you find ideas that inspire you to experiment, collaborate, and share your own creative approaches. Perhaps you will discover a new way to teach a challenging concept, rethink an activity you have used for years, or build a partnership that strengthens your program. Whether you lead an agriculture class, an FFA chapter, an SAE program, or a teacher preparation course, the stories in this issue serve as a reminder that the best ideas truly have no limits

Innovation in agricultural education thrives when we learn from one another. The Ideas Unlimited Award, through these projects, through this magazine, and through the educators who keep pushing boundaries, shows us what is possible when creativity meets purpose. May the ideas in this issue not only spark inspiration but also encourage you to share your own innovations, continuing the cycle of learning and growth that strengthens our profession.



Dr. Erica D. Summerfield serves as the Karen D. Stuck Assistant Professor of Agricultural Communication at South Dakota State University, where she teaches agricultural communication, public relations, and advertising. Her research examines agricultural literacy, visual communication, and emerging technologies, and she is committed to mentoring students through hands-on learning and professional engagement.

The Wonderful Possibilities of Water Beads!

Submitted by Annette Weeks, WA
Student author: Grace Weaver

From building communication skills to practicing the scientific process, water beads have proven to be more than just a toy. Annette Weeks from Prairie High School discovered this when she brought Orbeez into her classroom. Orbeez are used as a creative tool to help students practice scientific design in an engaging and hands-on way.

Water beads are tiny spheres about the size of a pinhead. When submerged in water, they can grow more than 150 times their original size. They come in a variety of colors and sizes, and are strong enough to support small objects. They are often used to hold flower stems, shells or other decorations in a vase for aesthetic purposes. The objects look as if they are floating due to the water bead's transparent qualities.

In Weeks' classroom, students were encouraged to design their own experiments using water beads. These experiments explored topics such as:

- The effect of temperature on how quickly water beads reach their full size.
- The effect of water pH on bead size and usefulness.
- The ability to grow bacteria in water beads compared to plain water when used in flower arrangements.
- How water beads affect access to sunlight and UV rays.
- How long water beads can support flower arrangements compared to plain water.

These experiments help students build both science and communication skills. They provide opportunities to practice research by posing scientific questions and creating result reports. The activities are simple to conduct using supplies commonly found at home. At-home experiments also allow class time to focus on portions of the scientific process while emphasizing how to concisely communicate findings. Students can follow a set list of research questions or develop their own, which gives them flexibility to explore and track their results.

The beads are inexpensive and easy to store because of their condensed size before they are submerged in water. Students are fascinated by their unique qualities, making them a perfect tool for applying investigative concepts in the classroom.

Something as simple as a water bead opened the door to creativity and meaningful learning. Students are able to demonstrate real-world applications of the scientific process in everyday objects like water beads. This serves as evidence that even the smallest tools can make a big impact in education.



Grace Weaver is a junior communication studies major at South Dakota State University. She is passionate about leading purposeful organizations and creating meaningful content that connects people and supports nonprofit and volunteer efforts.

It's Showtime: How Students are Taking Agriculture to the Airwaves

Submitted by Emily Schmidt, OK
Student author: Ella Stiefvater

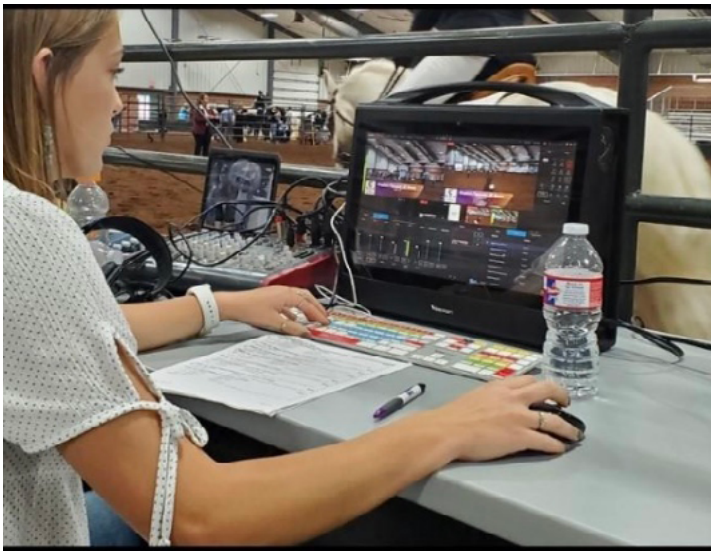
The effects of COVID left no school untouched. Virtual learning canceled in-person events and restructured milestones like graduation changed lives. Then leaders started adapting. One classroom in Chickasha, OK, saw the need for bringing events right into the homes and hands of their community. Addressing a problem and helping students apply the agriculture communication skills they were learning in class turned into an award-winning idea. As said in the award application, "teaching students how to use new and upcoming technologies is becoming ever so popular, and transitioning it to align with the agricultural education curriculum is critical to keep it new and fun for students to engage in."

> The opportunities that livestreaming provides to students connects [them] to the community and develops real world skills that prepare them for careers post high school.

Meet Emily Schmidt of Region II who pioneered Barn Flix Livestreaming. The student-run event broadcasting service brought events like the Southwest District Junior Livestock Show, Grady County Junior Livestock Show, Chickasha High School Graduation and more into the streaming space. Not only did these events benefit from the students' work, but students themselves also addressed eight Agriculture, Food and Natural Resources (AFNR) Cluster Skills and Career Ready Practices through the curriculum and execution.

Students enrolled in the class started with the basics in Unit One like lessons about digital streaming and communications. Next, they started attending several online trainings through the Livestream.com website and listened to guest speakers from well-known broadcasting companies Willoughby Sales, Walton Webcasting and KOOL 102.5 to learn from industry

(LEFT) Students streamed the video on the online platform and helped update the show results in real time.
(RIGHT) Involving students in different aspects of broadcasting includes recording results, checking the livestream quality, running cameras, and even announcing.





experts about improving viewer experience through picture and sound clarity. With more baseline knowledge students started exploring what production roles looked like and how they could plan to cover an event.

The next unit focused on what they can do on-site at an event. These skills include camera techniques, using software and streaming platforms and going live. They also learned how to incorporate extras like advertisements and inserting audio.

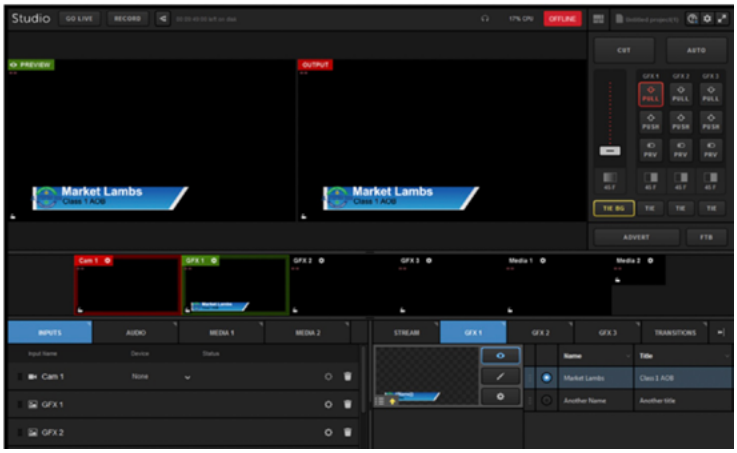
At the events students used Google Chromebooks to log in to Livestream.com and access editing software without needing to download it. In the Livestream.com suite students edited live content and inserted advertisements and music. Wireless microphones were also used for busy areas or if extra background noise was causing audio issues. Students created their scripts on Google Docs and shared them through the streaming platform.

Not every classroom looks the same, and teacher resources are not universal. That's why this concept comes with some adaptations depending on what's available for students. The highest level of investment could look like purchasing the livestream subscription and using a professional grade camera, microphones and sound deck but don't let the price tag hold you back from implementing the idea. A smart phone or digital camera can be used, and students can practice streaming on free social media platforms like Facebook. The quality of video and audio elements will be noticeably different, but it can still be a valuable learning experience. Even bringing in a guest speaker about broadcasting, developing ads or learning how to use a camera for video can be affordable learning tools to apply classroom instruction.

Today more than ever students are using streaming platforms for learning, entertainment and even jobs. Meeting them where they are and connecting with their interests is part of the reason this idea is so valuable. Students will learn how to research, work together as a team, problem-solve and think critically while working hands-on to address a need in their community. Beyond learning about agricul-

(BELOW) Adding fun assignments like creating a radio news segment or interviewing a teacher can give students another hands-on learning experience. (TOP RIGHT) Students got to go live on the air with their own commentary and announcement of class results.
(BOTTOM RIGHT) To elevate the broadcasting experience, you can invest in a subscription to a professional streaming platform.





Agricultural Communication and Leadership
Job Sheet
Video Interview Broadcast

I. Objective: After completing this job sheet, the students will be able to carry out a video interview broadcast.

II. Materials Needed:
- Interview Subject/ Teacher/ Role Model
- Recording method: Cell Phone/ Camera

III. Instructions:
- Using a news story from a newspaper or magazine, write and carry out a two-minute radio broadcast. The broadcast should be exactly 120 seconds. OR Interview a role model/teacher/ interesting person with a unique story.
- On the given form (Broadcaster Questions) Write five questions that you will ask during the interview.
- Include the recording and written questions along with this job sheet for scoring.

IV. Scoring:

FFA Agricultural Communications CDE
BROADCASTER'S RECORDING PRACTICUM

	POSSIBLE SCORE	STUDENT SCORE
Voice Quality	10	
Power of Expression	10	
Lead/Focus	15	
Clarity of Communication	10	
Organization, Concise and Brevity	10	
Creativity	10	
Accuracy of Information and Quotes	15	

ture communications, students will be developing both hard and soft skills sought after in the real world. As Schmidt says in her application, “The opportunities that livestreaming provides to students connects [them] to the community and develops real world skills that prepare them for careers post high school.”



Ella Stiefvater is currently a senior agriculture communications student at South Dakota State University. After growing up heavily involved in 4-H and FFA, Ella hopes to stay involved with youth in agriculture by working for an industry organization or news outlet in the future.

Teaching Soil Science: Implementing Psychomotor Learning & Adaptability

Submitted by Joe Ramstad, MN
Student author: Taylor Lacek

Looking for fun ways to teach students about soil science? Use this virtual learning-friendly, inexpensive and easy lab idea that your students will enjoy. Joe Ramstad, Region III, developed this subunit during the COVID pandemic as he navigated a hybrid learning model, limited soil samples on hand, and harsh winter conditions. He mentions finding his inspiration from a conference hosted by the Minnesota Association of Agricultural Educators, "Hue Know Your Value: Exploring Soil Color and Formation." This subunit is flexible and multi-purpose, designed to span four days but easily modified to fit a shorter or longer time frame depending on teaching styles. It taps into students' creativity, critical thinking, and motor skills while aligning with a wide array of academic standards that apply to classrooms beyond those focused on agriculture.

1. **Introduction & Pre-Lab**

On the first day, begin by introducing the concept of soil genesis by watching a short clip from Ice Age. Students then complete an activity where students take an ice cube and try to either move the farthest or melt their ice cube the fastest, followed by a brief discussion and connection into soil formation. Then, continue instruction by introducing the 12 soil orders and soil colors. For the last fraction of class, round out by explaining the two upcoming lab activities and expectations. Students should complete a pre-lab and get your approval before the lab days to ensure they are on the right track.

2. **Lab Days**

For the next two days, split students into two groups. On day one, Group A will scan QR codes linked to famous global landmarks/regions. For each stop, students will research the soil order, properties, and genesis. They should record their findings on a paper or digital guide sheet. Group B will simultaneously complete a lab where they utilize a Munsell Color Book and edible items such as pudding, whipped cream, and food dye to create their own soil in a cup. They should identify its hue, value, and chroma. At the end of day two, groups switch so every student has the opportunity to complete both labs by the end of day 3.



Students making edible soil.

3. **Group Discussion & Presentations**

On day four, the class comes together to share highlights from the Virtual Field Trip and Edible Soil labs. Students then will be tasked with a summative assignment where they complete a "Write a Soil Legend" task. In such, they will be asked to work in groups to write and present semi-realistic legends for how one of the soil orders could have formed and gotten its color. For this activity, it is suggested using the Legend of the Oompa Loompas from *Charlie and the Chocolate Factory* as an example. Allow the class to vote on favorites, granting the winner a small prize. End the unit by recapping key concepts.

The best part about this lab? Students love it and it's incredibly adaptable. There are so many ways soil formation and color can be applied in other agricultural education courses. In addition to

> "...implementing unique teaching methods in the classroom pushes students to achieve the pinnacle of learning..."

its application within a Natural Resource Science course, the subunit can be utilized in a soil's unit in Plant Science, Exploring Agriculture, Environmental Science or a middle school course. Soil science is such a crucial and foundational concept in many agricultural education courses. "Everything we enjoy in life can somehow find its roots back to the soil, making soil science an area that's crucial to teach well," Ramstad says. Outside of agricultural education, this interdisciplinary unit covers a wide array of Minnesota State Standards. Connected applications from the content area include writing, oral communication, number sense, chemistry, biology, geography, and visual arts, deeming this exercise a highly interactive learning opportunity.

Furthermore, virtual field trips and edible labs are an excellent way to incorporate psychomotor learning. According to Mariam Webster, psychomotor learning is the "process of developing and mastering physical skills that require the coordination of mental processes with physical activity." Ramstad uses this method on several other labs to keep students interested with new concepts, such as making "Edible Blood" to help students learn the components of blood in Veterinary Science, "Twizzler Grafting" in Plant Science to learn about basic plant propagation techniques and "Trail Mix Parli" in Intro to Ag to teach basic parliamentary procedure. However, teachers should take note of any food allergies or dietary restrictions students may have before assigning the subunit. Nevertheless, implementing unique teaching methods in the classroom pushes students to achieve the pinnacle of learning, as they work in collaborative and individual settings to develop and evaluate a model to demonstrate and apply their learning.

Ultimately, teaching soil science doesn't have to be dry and dull. By incorporating psychomotor learning through virtual field trips to global landmarks, edible soil, and even references back to noteworthy films, teachers can establish a learning environment that is collaborative and effective. This subunit has been tested by students and teachers, already receiving applaudable feedback. It is inexpensive, requires few supplies, no soil samples, and can even be taught entirely online. The content area of agricultural educators is extremely unique and relevant to students, so it is important to teach in a way that helps students apply abstract concepts they gain into something that is tangible. Try it out, and you just might find your new favorite lab assignment!



Taylor Lacek is a senior double majoring in Agricultural Business/Economics and Agricultural Communications with a minor in Public Relations at South Dakota State University. Her area of professional focus is Agricultural Economics and Risk Management.

Concrete Isn't Scary

Submitted by Abby Campbell, OH
Student authors: Taylor Lacek & Ella Stiefvater

Don't let your lessons on concrete and shop safety scare you. Thanks to agriculture teacher Abby Campbell in Ohio, you can take a sometimes-challenging subject and turn it into Halloween fun.

The whole unit contains fun and alternative ways to teach concepts like mixing concrete, learning about equipment safety and introducing students to the learning laboratory before taking on bigger projects.

Days 1-3: Safety Procedures & QR Codes

Safety serves as the cornerstone of any shop experience. Consequently, the first lesson objective is to identify and apply safety procedures specifically while working with concrete. Utilizing statistics from farm and agriculture accidents makes students more aware of the dangers on a broader scale and adds significance to safety instructions. Provide time for students to brainstorm ways to be safe as a group before venturing into the shop. Take a new spin on engaging students with safety procedures by printing QR codes and placing them on each piece of equipment they will be using. Each student should scan the codes and connect with a site that has specific safety considerations. With this information they should complete the 'Learning Laboratory Concrete Equipment Scavenger Hunt' worksheet to review what they learned about at each station.

Days 4-6: Discuss Workability & Slump Test Activity

Building on the foundational safety lessons introduced in the first three days of this unit, the second portion of this fun Halloween-themed unit pushes students beyond shop class and into the real-world science and application of concrete. Requiring minimal materials and a unique classroom shift, this activity combines creativity, inquiry-based learning and hands-on skills that are perfect for all backgrounds and scalable for any chapter's resources.

In this portion of the unit, begin by introducing students to one of the most essential concepts in concrete work: workability. This introduction sets the tone for the learning objectives over the following days and will be the set-up for the slump test activity. Administer images and news articles to students showing collapsed bridges, cracked sidewalks and construction failures. In groups, they act as investigative reporters and determine the "Cause of Death" in each structure by using critical thinking to connect these real-world disasters to poorly mixed or improperly cured concrete. From there, transition into the importance of learning about concrete - from backyards to farm pads to engineering careers, concrete is everywhere and is important to everyone.

Concrete pumpkins created by FFA members are painted after students complete a construction-based learning project.





Afterwards, students will engage in an "Oatmeal Slump Test" which models a concrete slump test, a method used to measure the consistency of fresh concrete before it sets. The instructions are outlined below:

1. Make a hypothesis on what the correct amount of water and heat will be for the perfect eatability of the oatmeal.
2. Make oatmeal mixture and using proper slump test technique, press it down into a paper cup.
3. Slowly lift off the dixie cup and turn it upside down next to the slump.
4. Lay the popsicle stick on the top of the cup and measure the distance from the stick to the top of the slump. (Here, students are guided on what makes a "eatable" or "correct strength" slump, usually about 1.5'' total height, or about half the height of the dixie cup).
5. Students evaluate their decisions and the strength of their oatmeal as well as eatability. With the collected information, graph the relationship between water used and strength of their oatmeal slump.
6. Compare and contrast to other student groups and make revisions to water/heat combinations. Revise and retest their hypothesis as they follow the scientific method. Make real-world connections to concrete based on observations.
7. *OPTIONAL CONTINUATION, DAY 8 (SEE BELOW):* The activity can end there or progress to mixing and pouring your own concrete jack-o-lantern by using a mold. It is practical enough to serve as the cumulative point of a concrete unit, or to be used as a one-day lesson.

Together, the Oatmeal Slump Test encourages cross-collaboration and reinforces scientific thought. By the end of Day 6, students have not only learned to measure and graph slump, but also how to troubleshoot a mixture and apply those insights to real concrete.

Days 7-9: Discuss At-home-use, Sakrete & Concrete Pumpkin Activity

"How do I mix and pour concrete at home?" Day 7 of this unit explains this concept in a Sakrete label literacy activity. In such, students will jump in by examining an actual bag label and dissect key information such as ratios, safety precautions, usage tips and drying times. Then, to reinforce the idea of aggregates and concrete composition, use yogurt parfaits to visualize how fine and coarse materials interact (i.e. granola, fruit and yogurt representative of sand, gravel, and cement).

On Day 8, split the class into two groups. Half remain in the classroom solving relevant math problems involving volume, ratios, and cost calculations. The other half heads to the shop to begin pouring the aforementioned concrete jack-o-lanterns using plastic molds. Use the concrete pumpkin activity to reflect all the concepts learned so far: slump, safety, and proper measurement.

By Day 9, allow students to switch stations to ensure everyone completes both sections of the lab. From here, each student should submit a completed concrete pumpkin along with reflection questions. Challenge students to consider what went well, what they would change next time, and how they applied their

> Making a fun and engaging activity based project that also fits the Halloween season can be an effective way to help your students achieve their goals in the classroom and shop.

Instructional Value

- **Language Arts:** News Article/Pictures for Current Events of Concrete Failures and Application to Lesson, Sakrete Label Analysis
- **Math:** Reading a Tape Measure Fractions, Slump Test Graph & Volume Calculations
- **Science:** Concrete vs. Cement, Curing of Concrete, Structural Properties & Testing Strength
- **Communication:** Current Event Presentation, Group Work, Career Presentation

slump test learning to improve their final product.

Days 10-15: Evaluation, Unit Test, & Wrap-Up

For the final unit evaluate the students' work based on structural soundness and quality, cost efficiency and accurate measurements. To add student involvement and engagement, think about hosting a 'Pumpkin Reveal Day' where students can show off their work. Turn this into a peer evaluation by providing guided notes about strength while having students do a pumpkin gallery walk. Utilizing a rubric for class evaluation, score each pumpkin according to a points-based system that reflects the objectives of the project.

During this week, invite an industry representative to speak to the class for a real-world application of the concepts learned. Consider adding a presentation about careers that relate to the concrete activity, and how they can learn more about a job in that industry.

Finally, provide a post-concrete unit test to assess the knowledge students retained throughout the course and evaluate the success of the project.

Conclusion

While this unit in its entirety has been successfully implemented, there are times when teachers need to adapt to fit their classrooms. Strategies for change include using different size pumpkins depending on what you have available and certain lessons can be shortened or made into a one-day project.

The purpose of incorporating this lesson plan is to take a commonly known and used lesson plan and refresh it to encompass more subjects. Making a fun and engaging activity based project that also fits the Halloween season can be an effective way to help your students achieve their goals in the classroom and shop.



Taylor Lacek is a senior double majoring in Agricultural Business/Economics and Agricultural Communications with a minor in Public Relations at South Dakota State University. Her area of professional focus is Agricultural Economics and Risk Management.



Ella Stiefvater is currently a senior agriculture communications student at South Dakota State University. After growing up heavily involved in 4-H and FFA, Ella hopes to stay involved with youth in agriculture by working for an industry organization or news outlet in the future.

Sand Slides

Submitted by Becky Peltonen, FL
Student authors: Brooklyn Mettler & Kortney O'Day

Have you ever wanted to learn about the properties of sand and how weathering and erosion affect it? Well, this is the project for you!

This is an easy, inexpensive project with no specialty pieces of equipment. The main concept of analyzing sand is for students to observe and record properties of sand from different locations. This activity allows students to explore all the properties of sand and shows weathering, erosion, and depositional characteristics.

Prior to beginning this activity, high school students should have just completed classwork on soil science, geography, or environmental science. This will ensure that students can recognize key details and concepts more quickly.

Materials Needed:

- Pre-cut pieces of construction or copy paper
- Transparent tape
- Sand samples
- Petri dishes or paper plates or baggies
- Scissors
- Microscopes

The steps for how to use the materials are **step one:** fold a piece of paper strip in half and cut a triangle with scissors in the center of the strip. **Step two:** unfold the strip of paper to show a diamond and place a piece of tape over diamond. **Step three:** place tape into dish with sand and tap of excess sand. **Step four:** place paper with tape sand side up on the microscope.

Step five: complete sand analysis in notebook then also put tape side "sand side" down in the notebook next to the corresponding information to the sand. **Step six:**, repeat the steps with the other sand samples you have.

There are many different ways that Becky Peltonen, a high school agriculture teacher from Florida, found and collected sand samples. For example, she has picked up many different sands on her vacations. She asked her students to pick up sand samples when they went on vacations or family road trips, also.

When completing the sand analysis, students should focus on analyzing the origin, colors, sorting, sand grain, and roundness principles under a microscope. These principles reveal a variety of information about the sand, its type, and its history. For example, sands that are moderately to well-sorted will have most of the grains roughly the same size, while poorly and very poorly sorted sands will have a variety of sizes.

Particle size indicates how much force is needed for transportation and deposition. Larger particles will require more force in comparison to smaller particles. How tightly packed the grains are can be used to determine distance and time traveled. Well-rounded grains have experienced high levels of erosion and consistent weathering. Angular grains have experienced short transport times or decreased times in a depositional environment like a river or a lake.



(RIGHT) Exploring sand under a microscope allows students to further explore the properties of sand grains.

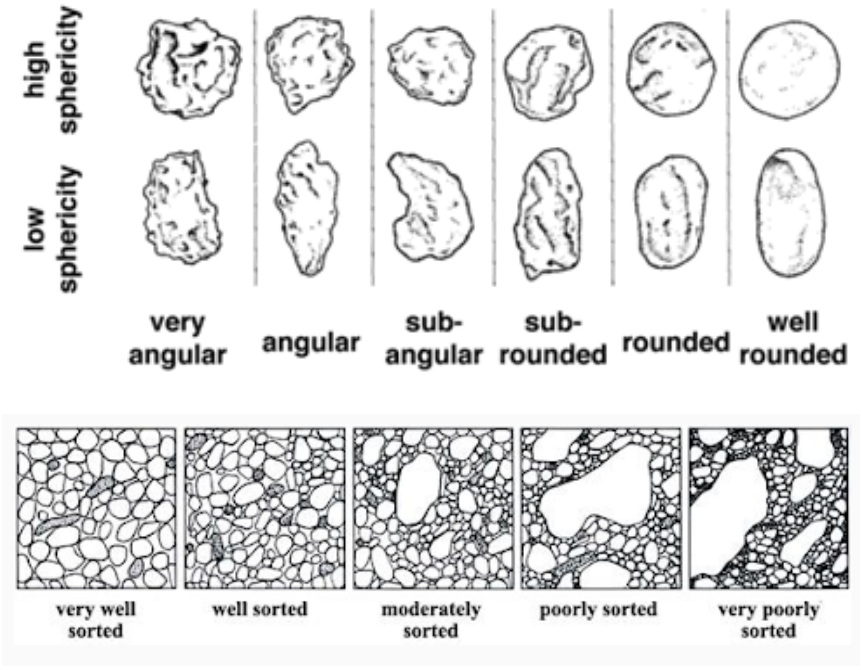
Soil Particle Size Classification

Grain Size (metric)	*Name*
1-2 mm	Very course sand
0.5-1 mm	Course sand
0.25-0.5 mm	Medium sand
125-250 µm	Fine sand
62.5-125 µm	Very fine sand

Students can also analyze hard weathering minerals such as quartz (glassy white), feldspar (pinkish or white/grey), and muscovite (flat silvery glittery sheets) by looking for corresponding colors in in the sand.

Upon completing the sand analysis, this activity can be expanded by having students research parent material of the sand, using the minerals they observed. For example, most of the sand at the Panama City Beach is comprised of approximately 99% pure silica quartz, which would appear as a glassy white or grey color under a microscope. This quartz can be traced from the Appalachian Mountains by the Apalachicola River. Beyond tracing parent material, students can also explore the deposition of flood material and how it affects its environment.

Whether your students are looking to explore sand from a different perspective or explore erosion and deposition on a deeper level, this activity helps students explore the properties and principles of soil science!



Example of sand samples and microscope set up



Brooklyn Mettler is a junior agricultural communication and advertising major at South Dakota State University. She is passionate about agriculture and enjoys working on her family's farm.



Kortney O'Day is a junior agricultural communication major at South Dakota State University. She is passionate about expanding her agricultural education.

Building Confidence with Students New to Animal Agriculture

Submitted by Lauren Ruskey, DE
Student author: Brooklyn Mettler

Are you looking for a way to build confidence with students new to animal agriculture? Meet Lauren Ruskey, an agriculture education instructor from Delaware, who found a way to build confidence in hands-on veterinary skills with non-traditional students after being inspired by a publication from Virginia State University's Chantel Wilson.

Using a variety of demonstrations and group exercises, students can practice veterinary skills and build confidence before advancing to practice on live animals. This can be highly valuable as it gives students a chance to practice their skills without fear of making a mistake. When working with live animals, students move forward with a foundation of confidence and skill. This lab addresses teaching students to quickly examine a goat and diagnose it so the proper treatment can be administered.

Tools Needed:

- Stuffed goats
- Sewing materials
- Stuffing
- Black pepper
- Box lids
- Cardboard

To start, purchase a number of stuffed goats from Amazon. Alter the stuffed goats resemble a variety of health issues such as pink eye, lice, deficiencies and even pregnancy. These alterations include sewing on red and pale eyelids, udders, stuffing the bellies to resemble pregnancy, and adding black pepper to resemble lice. Using box lids, create "pens" for the goats to live in during the exam. Examine the pens and focus on identifying specific environmental factors such as temperature, pen space, flooring, or sanitation practices that might have played a role in the goats' condition. These can include loose stools made from cardboard and moldy feed issues by placing small torn up pieces of cotton balls.

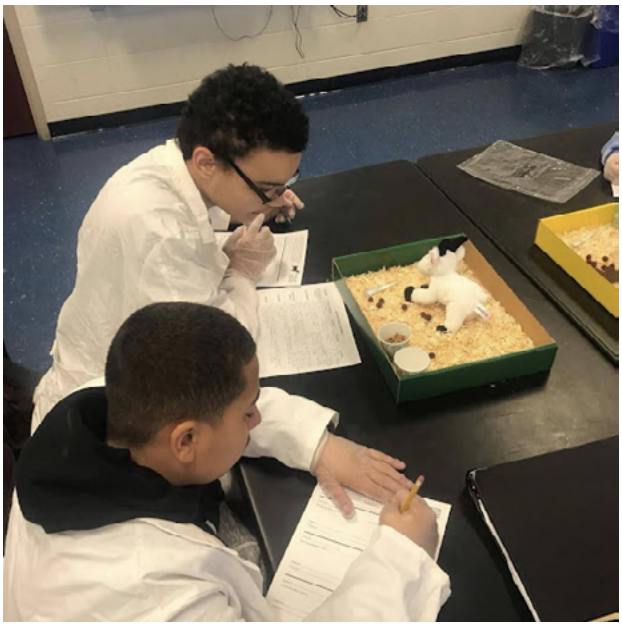
Have students read an article and fill out a graphic organizer containing information about how the issue develops, symptoms, treatments, and prevention strategies. Discuss the answers in the graphic organizer as a class to allow students to correct any mistakes prior to the exam.

To give students the full veterinary experience, have them put on white lab coats, gloves and aprons. The students are given a scenario, then sent to observe the goats, diagnose them using the graphic organizers, prescribe treatment, and give the producer feedback on preventing the issue from recurring. This can be done in groups or individually and stu-

> Exercises such as these encourage students to build interpersonal communication and problem-solving skills while working with discussion and hands-on learning.



Goats anxiously await their examination from the students.



Students work as teams to diagnose the goats.

dents can give feedback in front of the class to practice public speaking skills. When prescribing treatment, give students specific dosages and weights to encourage them to practice technical math skills.

Exercises such as these encourage students to build interpersonal communication and problem-solving skills while working with discussion and hands-on learning. This appeals to a range of students that may learn best using different methods. By giving students, the opportunity to engage and learn with materials they are familiar with, such as stuffed animals, instructors remove some of the fear students may have and build their confidence for real world implications.

When students are first asked to identify issues with live goats, it can feel intimidating. They may worry about missing key details, not knowing what counts, being "wrong" or even just being timid around an animal they aren't familiar with. By observing pen conditions such as bedding or feed issues on stuffed animals, students learn to spot subtle details that can impact animal health. This makes the transition to working with live animals feel less intimidating as students already have an idea of what they are looking for and what to pay attention to.

This kind of practice enhances confidence as students observe that their judgement and reasoning matter and even the smallest of details can be weighed in livestock management. It also builds the same skills used by veterinarians, farm managers, inspectors, and any job requiring observation, analysis, and clear communication.

This method of instruction could be modified to fit a variety of programs. For example, a plant science teacher could use stuffed flowers to demonstrate greenhouse issues or diseases, or a shop teacher could address welding issues by using frosting. It's only limited by an instructor's creativity.

Activities such as these combine common academic goals, such as interpreting scientific texts, making observations, drawing conclusions, and doing it all in a collaborative setting. By using demonstrations and group exercises, instructors can expand beyond performance-based learning to experiential learning and leaving students with a lasting memory and understanding of the material.



Brooklyn Mettler is a junior agricultural communication and advertising major at South Dakota State University. She is passionate about agriculture and enjoys working on her family's farm.

Historic Replica Stool

Submitted by Trevor Motley, MT
Student author: Kortney O'Day

Have you ever wanted to teach a history lesson and have a cool project to go with it? Trevor Motley has come up with an idea to connect agricultural education students to state and regional history. He also adds Indian education through the agricultural technology and mechanics laboratory learning. Trevor has done a great job of turning all of these ideas into a lesson that also adds to the early settlers building a historic replica of a wooden stool in his middle school classes.

The history lesson teaches early Montana history and the history of Father Ravalli. The stool project was designed based off a unique stool build by Father Antonio Ravalli circa 1800's. The first time this stool was built was between 1845 – 1884.

The purpose of this project was to show agricultural students the historic ties to Father Ravalli and not just his influence on Montana but also the Pacific Northwest. With this it incorporates American Indian education into the classrooms. Bringing hands-on activities to history and American Indian education will also help with students in educational literacy, as well as giving them a hands-on project to also start a woodworking journey.

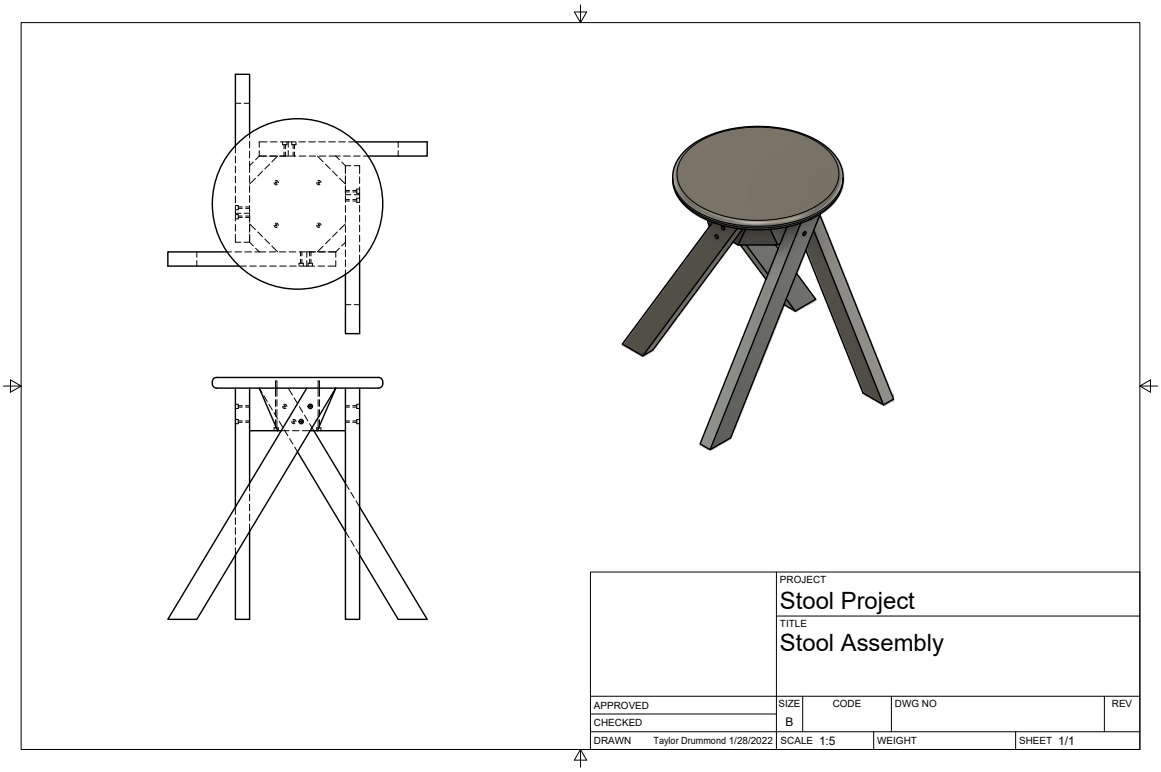
> Bringing hands-on activities to history and American Indian education will also help with students in educational literacy, as well as giving them a hands-on project to also start a woodworking journey.

The following are the items that you are going to need for this project and how many of each item per stool you will need.

- (1) 2"x4"x4'
- (1) 8"x8"16"
- (1) Prefabricated 5/4" Round 12" Diameter
- (8) 2 1/2" Wood Screws
- (4) 3 1/2" Wood Screws
- Wood Glue
- (8) Screw hole buttons
- Finishing Supplies (Sandpaper & Stain)

The idea of this project is for it to be feasible and useful to other agricultural educators. It has already been shared in at least one other agricultural education program in Montana, why if not so many more. The total cost per stool project per student is about $13.00 per stool but this does not include fasteners. As for the retail value of the stool, it easily exceeds $50.00 for each stool!

Trevor has already used this project as a semester capstone. The lessons taught pre-

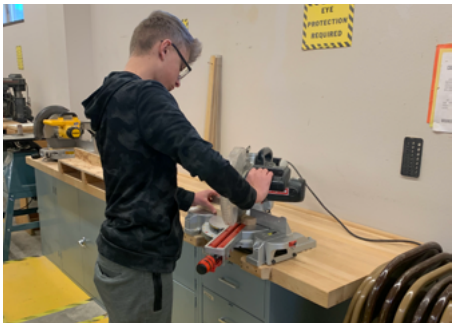


CAD blueprint showing the stool's structure and material specs.











ceding this project also include laboratory safety, equipment identification, measurement lessons/ worksheets, and so much more than what he thought. As a capstone course, this means that students use all of the skills they have learned over the years in school. Along with this project you can use CNC technology to router/engrave the students stool seat.

(TOP LEFT) Original Father Ravalli Stool & Easel on display at St. Mary's Mission.
(BOTTOM LEFT) Student C.A. utilizing the miter saw to cut legs for his stool project.
(TOP MIDDLE) Completed sample stool with St. Mary's Mission's livestock brand on the seat.
(BOTTOM MIDDLE) Finished student work on display in the main display case of Stevensville Middle School.
(RIGHT) Student A.M. working on final assembly of her capstone stool project.



Kortney O'Day is a junior agricultural communication major at South Dakota State University. She is passionate about expanding her agricultural education.

Trailer Safety Model

Submitted by Ethan Beeman, CO
Student author: Rachel Teunissen

Across the nation, it is common to see countless trucks with trailers hauling a variety of products to satisfy agricultural needs. Behind the wheel of some of these vehicles are high school students who are striving for success for either an employer or the family farm.

Mr. Ethan Beeman, Agricultural Instructor and FFA Advisor at Rye High School in Rye, Colorado, noticed that many of his students were regularly hauling trailers on the region's windy mountain roads. Concerned for their safety, he set out to ensure they had the knowledge and skills to properly balance trailer loads and understand essential trailer safety practices.

The lesson planned and developed was successful. The situation is scaled down to create a controllable environment that allows for trial-and-error learning with students. Materials needed include a toy truck and trailer that can be securely hooked together, a weight of three to four pounds, and a treadmill that can run at least five miles per hour.

These treadmills can be found on Amazon.com for around $150.00, or utilizing the treadmills in the school's weight or training rooms is also a possibility.

The toy truck and trailer should be tethered to the treadmill so that it is able to "run" without pressure from the teacher or students holding it. The students are then tasked to figure out where the weight should be placed on the trailer to keep the most stability. As the students place the weight in different areas of the trailer, they will be able to see how different weight distributions affect its control.

The students are then asked to calculate to find the most level-balanced load. They can put levels on the trailer and measure the height of the bumper on the truck to identify how much traction is being lost. The students should conclude that a tongue weight of 10 to 15% is ideal. The tongue weight is the downward force that the trailer's tongue puts on the towing vehicle's ball hitch.

After this, old and very dramatic PSA videos are shown to students to give them inspiration on how to create their own PSA announcement on the importance of balancing a trailer when hauling. Students will then form groups and utilize different platforms, like iMovie, to produce their own 30-45 second video. This is not only a great opportunity for students to showcase and gain more experience in recording, editing, and other tech skills, but also a great opportunity to have a conversation with students about copyrighted and free use domain materials. Be sure that students understand that all the sounds, music, and images they use should be free use so that there are no issues if it is decided to post their videos on YouTube or another platform.

Through this hands-on lesson, Mr. Beeman not only teaches his students valuable technical knowledge about trailer safety and load balance, but he also provides them with practical skills that can directly impact their safety in the real world. By combining science, technology, and creativity, students gain a deeper understanding of the importance of the safety lesson while developing digital skills through video production. This approach

> As the students place the weight in different areas of the trailer, they will be able to see how different weight distributions affect its control.



Metal weights are used as an example to show students how to distribute weight correctly on the axel of a trailer to ensure their safety on the road.

not only reinforces critical safety practices but also empowers students to become responsible drivers and informed communicators. It's a clear example of how agricultural education continues to evolve to meet the needs of today's youth in meaningful and impactful ways.

Students are able to learn how to safely distribute weight when hauling trailers through an interactive simulation done on a small treadmill.





Rachel Teunissen is a senior at South Dakota State University majoring in agricultural communications. She has completed internships in marketing and communications and is active in several agricultural clubs.

Advancing Agriculture: One Innovative Student Idea at a Time

Submitted by William Fritz, ND
Student author: Gabi Joos

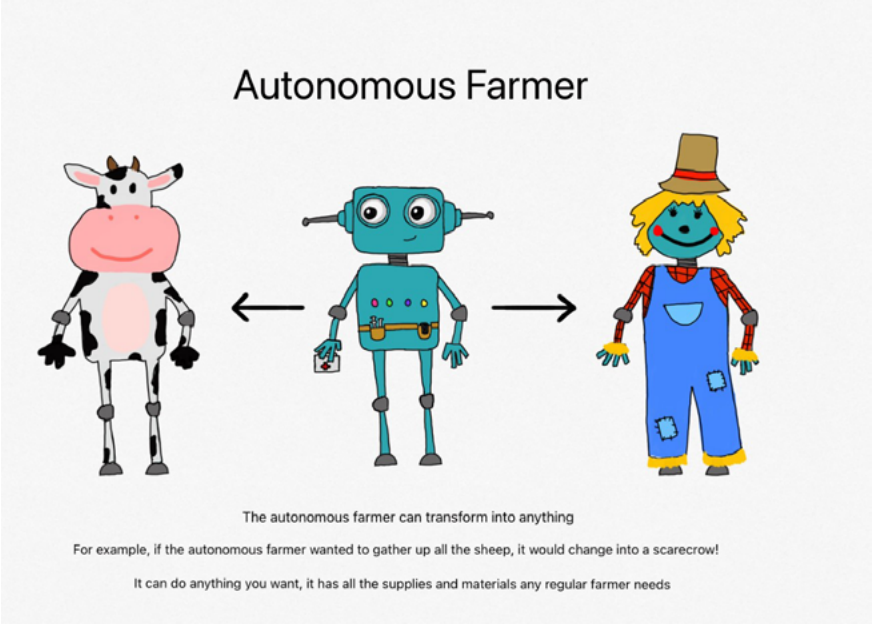
Farm technology is advancing every day and the world's population is continuing to grow. While this does not seem like an issue to many, the farming population needs to figure out ways to continue feeding the growing population. William Fritz, an instructor at Sheyenne Valley Area Career and Technology Center in North Dakota, is working to address this up-and-coming issue. Fritz started a program called "Technically Terrific." His program is designed for his eighth grade Exploring Agriculture students. As farm technology is ever-changing, old technology is soon going to be replaced by high-tech equipment. Fritz's goal with this activity is to help students better understand the technology being designed and developed and how it will be used in agriculture.

Fritz's idea of this project sparked after some of his students visited Burchhill Farms in Valley City, North Dakota. During this trip, one of Fritz's students asked farm owner Casey Burchhill if he would incorporate automation technology into his operation. The farmer's response was simply that technology has helped his operation grow substantially and that he believes technology is fun.

> This project allows agricultural educators to cover important topics that expose students to various aspects of the agriculture industry and develop crucial skills that may get overlooked or passed over in other coursework.

The "Technically Terrific" program is split into two sections. The first section serves as an introductory phase where students engage by reading an article that was in the 2020 edition of North Dakota Agriculture Magazine. This article discusses where in the world precision agriculture technologies are being implemented in the agriculture industry. Next, students explore the Grand Farm, which is south of Fargo, North Dakota. Grand Farm is working to be the first fully autonomous farm in the United States This lesson helps students understand how farms like Grand Farm will impact farming in North Dakota and across the world.

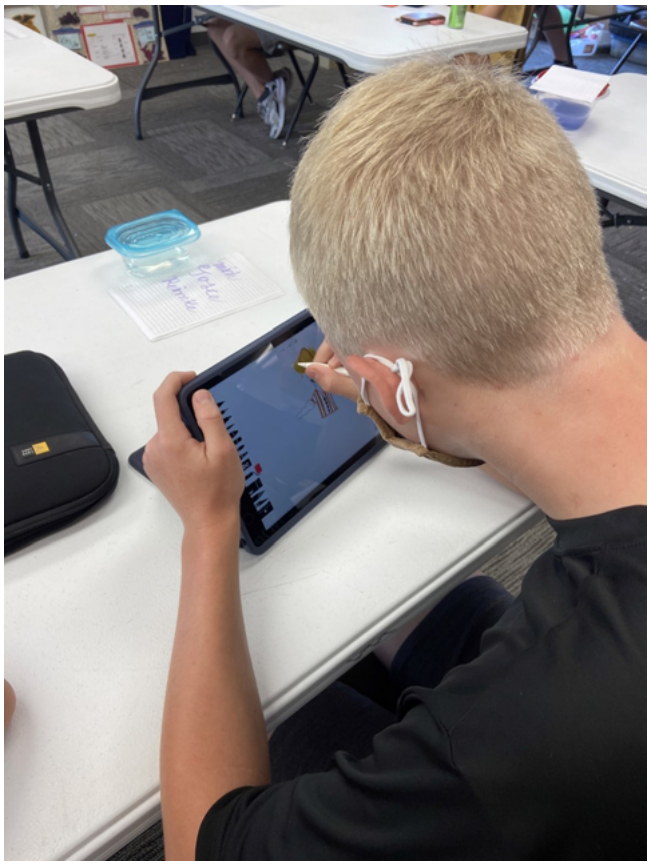
The second section of "Technically Terrific" program is all hands on. Students apply what they learned in section one and create their very own autonomous equipment. This section begins with students watching three videos that discuss autonomous equipment. After watching the videos, students are required to design their very own piece of autonomous equipment. Students are given three days to design their piece of equipment.



Students' unique perspectives of agriculture are highlighted in their drawings.

In the design process, students are given a list of five requirements that they must follow. Students must make a detailed drawing of their equipment. They then must explain in detail how their equipment works. They then need to explain how the farmer or operator will control this piece of equipment. Students must also create a name for their equipment. The final requirement asks students to create a video with a voiceover that explains their piece of equipment. Once all of this is complete, students will present their video to the class via a presentation.

This project allows agricultural educators to cover important topics that expose students to various aspects of the agriculture industry and develop crucial skills that may get overlooked or passed over in other coursework. This program helps expose students to knowledge on precision agriculture. Discussions with John Deere engineers teach students about autonomous equipment. Students also develop design and agricultural engineering, agricultural mechanics, and presentation skills in this course. This project also allows students to unleash their creative learning skills.



Students get creative with technology to create a detailed drawing of their autonomous piece of equipment.



Gabi Joos is a senior agricultural communications student at South Dakota State University. She is passionate about sharing all things agriculture through digital platforms.

Video Games Meet the Farm: A New Approach to Agriculture Education

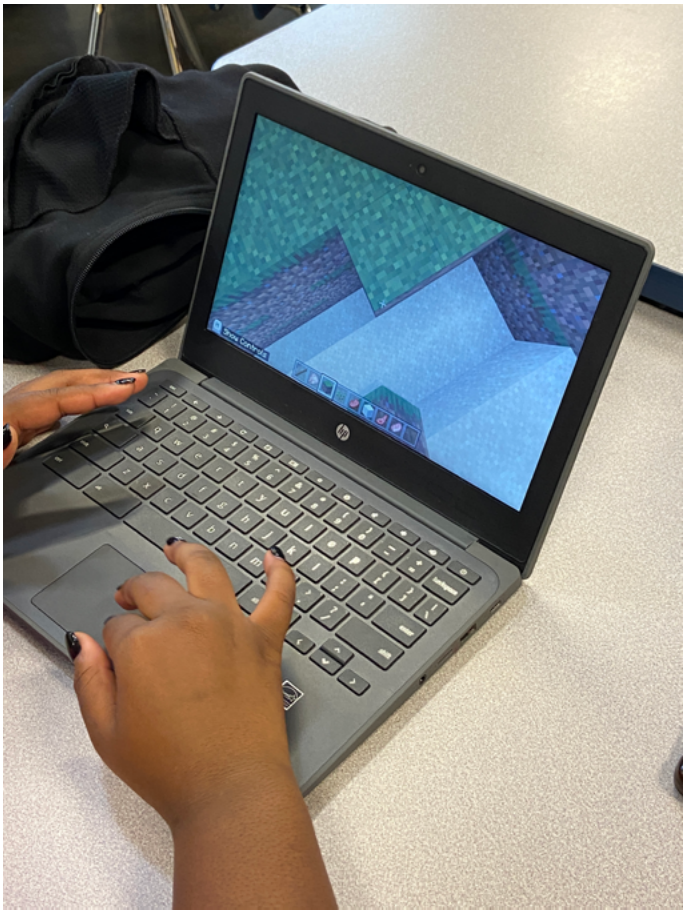
Submitted by Fallon Jackson, KY
Student author: Raina Johnson

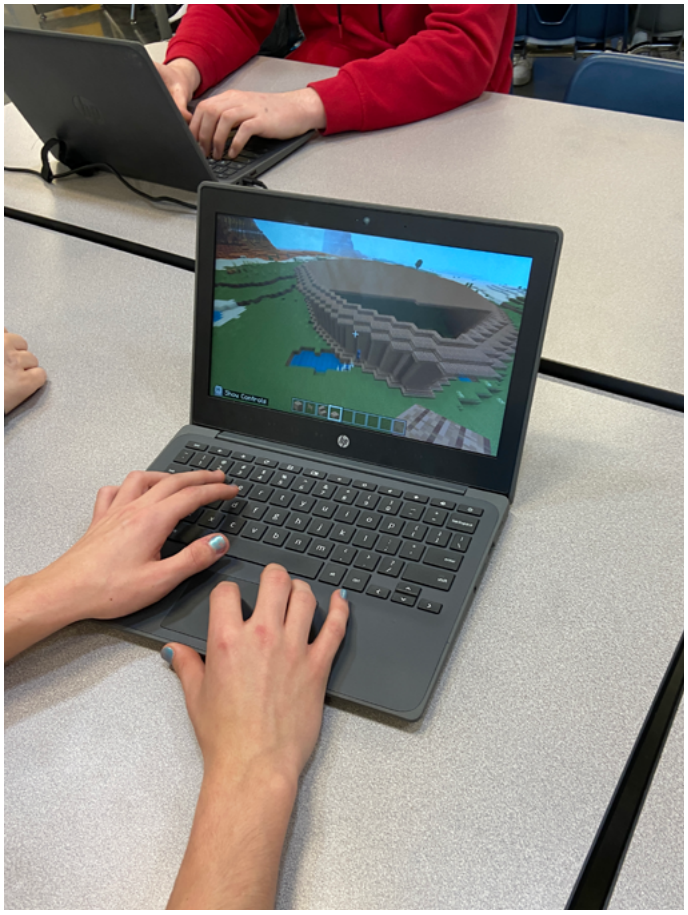
Traditionally, agriculture education has relied heavily on textbooks and lectures to teach students about agriculture. However, one teacher discovered that the key to engaging high school students is letting them learn through a video game they already know and love. Fallon Jackson, an agricultural education teacher from Kentucky, said in her award application "Finding projects that get high school students excited is rare, but Minecraft does just that without fail."

Mrs. Jackson first thought of the Minecraft project during COVID, when virtual learning meant teaching lectures via Zoom and struggling to get students to show up. Forcing her to find a new way to get students excited about agriculture. She realized that she could meet students in the digital world they are already familiar with, while teaching essential agricultural concepts. Minecraft allowed students to apply real world agricultural principles while working in an environment they felt most comfortable rather than feeling forced. What start-

> "...she could meet students in the digital world they are already familiar with, while teaching essential agricultural concepts."

Students fully immerse themselves in building and designing their own personal equine facility.



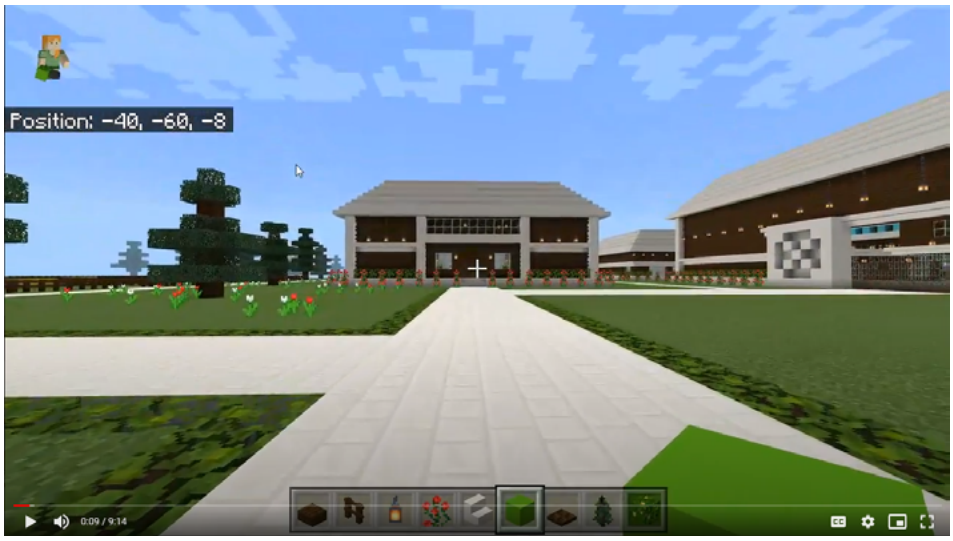


ed as a remote-learning project, proved to be so successful that Mrs. Jackson continued using the idea even after students returned to the classroom.

This project offers a unique approach to teaching, by letting students experience learning through a hands-on, three-dimensional environment. Minecraft is a very popular video game where students are able to build and explore virtual worlds that are made entirely of blocks. Mrs. Jackson, utilizes the game by having her students design and build their very own equine facility. They are encouraged to use the information they learned in class, during the equine unit, to best determine how they want to build their facility. Some examples that students have built include a racetrack, boarding facility, retirement farm, breeding barn, and much more.

A glimpse into the world of Minecraft, through the eyes of a student. Creativity is limitless, and students excel when they are passionate about a project.









Raina Johnson is a junior studying agricultural communications at South Dakota State University. She is dedicated to telling agriculture's story and connecting communities through clear, impactful communication.

A Sweet Lesson in Food Science

Submitted by Nancy Sell, GA
Student author: Grace Sargent

In today's fast-paced world, many people rarely stop to consider where their food comes from. We live in a culture that greatly prioritizes convenience and consumerism. Food is consumed in abundance, yet little thought is given to the origins, production, and science behind it. This disconnect from food sources is evident among younger generations, who often grow up without ever seeing a farm or learning how food travels from the field to their plate. Georgia agriculture educator Nancy Sell was concerned that students across the country fail to recognize and appreciate the sources for their food. She decided to do something about it and implemented a class project she designed to promote a new way for her students to get a picture of where their food comes from and what it takes to make it palatable.

Sell took her passion for connecting students to the origins of their food and created the Food Product Development project with the motive to encourage deeper learning out of concern that students in her school and beyond lacked awareness and appreciation for the agricultural systems that sustain them. The project was built around developing a new, original flavor for Dairy Queen. While this may seem like a simple dessert challenge, its educational value far exceeded that. This assignment was intended to help students gain a deeper understanding of the physiological and chemical properties of milk products, apply food safety elements, research consumer preferences, develop a recipe, and create a detailed marketing proposal. The project not only taught students about ice cream, but about the complex processes behind agricultural production, product development, and food science careers.

To make the project more commonplace and relevant, Dairy Queen was the route to appeal to students. Because the students were already familiar with Dairy Queen and its products such as Blizzards, it encouraged students to think through things they may never have before. It's seldom considered where the milk, cream, sugar, or fruit came from, but in this project, the opportunity presented itself.

The project gave students a scenario that challenged them to develop a new and unique Blizzard menu item for Dairy Queen Restaurants in a one-week time frame. Though it seems like a surface level assignment from the outside, it was more than just mixing candy bars and flavors. The project required a written proposal that

(LEFT) Students were provided with a mixer to effectively combine ingredients into the ice cream, not just leave them as toppings.
(RIGHT) Students worked in groups to craft their recipe, develop their marketing plan, and ultimately make their recipe.





required students to show originality of product, their targeted demographic, a marketing plan and research and food safety. At the end of the project, students were able to bring ingredients into class and try their recipe with vanilla ice cream. Upon assembling their Blizzard recipes, fellow students were able to taste test the various recipes. As an incentive, extra credit was given to the group with the winning recipe from the taste test.

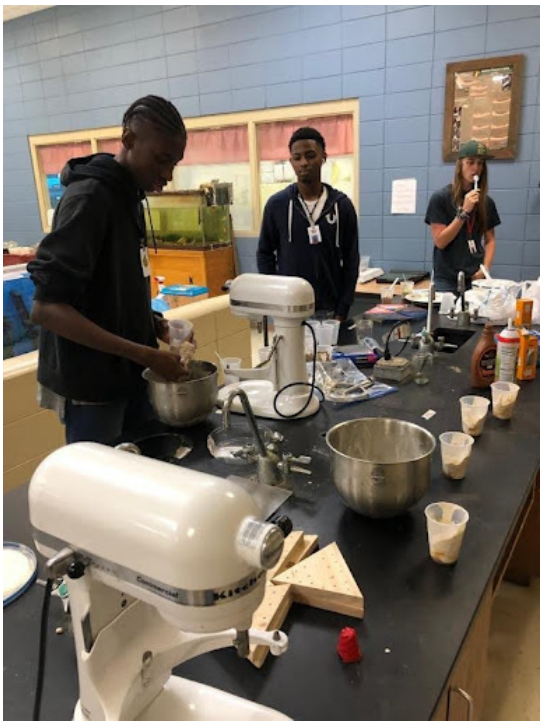
To circle back to the original issue, the project ultimately served as an opportunity to have fun while exposing to students where their ingredients came from, as a large problem in the agriculture industry is the gap between consumers and the origins of their food growth and production, especially in states and communities that don't grow a ton of crops or raise much livestock. This often results in customers having no idea where their food came from, or the process it took to get from field to plate. When this misunderstanding occurs, food gets taken for granted, and the hard work of ag producers, product development, and assembly gets overlooked. It was described as "Even if consumers are interested in the production of their food, many have an idealistic picture of a farmer in overalls hoeing vegetables in their garden to be later sold at a farmers market."

It often goes unnoticed how much work ag producers put into their livelihoods of farming to produce food to feed the world. Even with agricultural education, the gap still remains unbridged between the farm and the restaurant or grocery store shelf. Through teaching about food product development, students were able to get real-world insight into the manufacturing of agricultural products to meet the limitless needs of consumers.

Thus, it becomes the responsibility for educators, specifically ag teachers, to take on the task of educating people on the process food actually goes through before it ends up in the belly. Not only does the origin of foods get overlooked, but it's also common for the processes that foods go through to become marketable to also go unthought of. The ability to make a career out of the food science industry outside of the basic operation of a restaurant is also under-appreciated. Projects with broad instructional value that tie in the various ends to food production and consumption can seem like a big challenge to teach, but the Food Product Development project covered all the bases and more.

As previously mentioned, implementation of projects that seek to provide quality instructional values that stick with students can be challenging, expensive, and uncertain, but the Food Product Development was a solution to all of that. The expenses were limited to vanilla ice cream and a mixer, the project was attractive to students, and it was specifically curated to provide insight into ingredient production and use. Since students love sweet treats and tend to pay attention to lessons involving food, things came together well. The project's layout, design, and length served as a fun end of year project to solidify why students learned what they did

> Outside of the ingredients, students were also tasked with thinking like innovators and entrepreneurs, tasked with developing a marketing plan along with a written proposal for the project, putting a component of communications development into the assignment as well.



Students were provided vanilla ice cream but brought their own add-ins to create their recipes and allow other students to try their uniquely developed products. The class voted on their favorite, and that team was awarded extra credit points.

throughout the year. Creativity in the project knew no bounds, and for some revealed a potential career choice in an industry they now had education on, such as product research and development, quality assurance, marketing, nutrition, and others.

The Food Product Development project incorporated elements of math, science, and communications within the agricultural realm. Students were tasked with creating recipes with specific requirements, such as an in order of use ingredient list, along with listing specific functions of each product's ingredients. All this enabled further understanding of food protein structure, chemistry, and microbiology into their final products. To do that, students determined functionality of several ingredients using math to specify how much of each ingredient to use so that flavor combinations complimented each other yet provided a unique and original twist.

These recipes had to be completely original, with no other product like it on the market. These detailed recipes utilized math proportions for their ingredients to ensure each component played a functional role in the final product. The recipes were required to be heavily detailed for proper preparation.

Outside of the ingredients, students were also tasked with thinking like innovators and entrepreneurs, tasked with developing a marketing plan along with a written proposal for the project, putting a component of communications development into the assignment as well. Sixty percent of the final grade came from the written proposal, giving communications a lot of weight in the project. The plan included detailed explanations of marketing techniques to be used, and students had to demonstrate their use of marketing tools, creativity, and professionalism. A target audience needed to be identified to match the product theme. Written communication also played a central role, with a written proposal to identify all required areas.

Because students were tasked with so many different elements in the project, the educational value for students was vast. Students were able to educate themselves on how consumer preferences impact the development, creation and marketing of food. It became a project that not only provided new insights to the ag industry but had a sweet incentive to it as well.

The class project Sell created sparked student engagement by using several methods of learning that appealed not only to academic interests, but also sensory interests as well. Through the varying components of the assignment— from communications to math, students developed a contextual understanding of the importance of applying academic skills into their future careers.

The Food Product Development Project is a model for how educators can effectively bridge the gap between consumers and the agricultural industry. Through tasking students with the creation, marketing, and scientific exploration of a product like a Blizzard, teachers can help students gain a deeper appreciation for the complexity of food production. This unlocked the consideration of new career opportunities in agriculture or food science, can help students think about the origins of their food, and gain new insight on sustainability and innovation. Through projects like these, the next generation can be informed and engaged consumers, and perhaps, future food scientists.



Grace Sargent is a junior agricultural communication major at South Dakota State University. She is passionate about advocating for the agriculture industry in South Dakota's state government.

Bringing English to Agriculture Education

Submitted by Todd Eick, NY
Student author: Kennedy Foster

When you think of agricultural education, poetry isn't the first thing that comes to mind, is it? Todd Eick, a teacher from New York, submitted an idea to get art orientated students interested and engaged with agricultural education.

This new and creative way to engage students in agriculture is by having them participate in blackout poetry.

By using blackout poetry, students can have a new and creative way to engage with agriculture. Blackout poetry uses a piece of written text and forces the writer to use the words in the order they are found to create a poem. The reader will go through the poem and black out words that were not used in the poem with a marker. In the assignment he gave to his students, the instruction was to find an article related to growing your own food, requiring them to write a poem about hunger. This assignment was an opportunity for his students to create something new from an article that has a different meaning than what their intended topic was. This assignment gets students thinking outside of the box and helps them dive deeper into the articles that they are reading. To display their completed poems, Mr. Eick gave them the freedom to create posters, by using graphic design skills to make pictures that represent their story. He loves that the assignment reinforces reading comprehension skills by having the students read the article repeatedly.

Practicality of the Idea:

The concept of the blackout poem can be used in several ways to promote learning in agricultural education while also enhancing reading comprehension skills. This assignment could also be used for any subject in any class.

"The same assignment could easily be done using an article on the Industrial Revolution, a journal entry from a renowned veterinarian journal, a letter written by a founding father, or any piece of writing from a number of textbooks, magazines, or online resources."

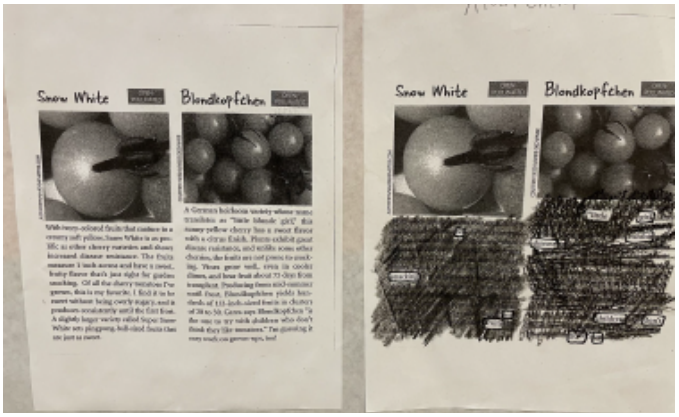




Fig.1 Examples of the blackout poems done by special education students.

(TOP) Aiden C., Freshman at MCSD
No snacking
No fruits
Little girl exhibits disease
Children don't grow up.

(BOTTOM) Aubrey J., Freshman at MCS
It's difficult,
so many Americans:
No snack
No garden.

Example of Blackout Poem as Poster

Camryn E.,Sophomore at MCSD

Alone

Our nutrients matter.
Our health is expensive.
The crowd grazes and eats.
They left litter in a larger area,
Then they leave farmers in the soil.
This is why I wouldn't grow.
They saw my needs sacrificed
So they would all grow.
I thought I could grow again,
I never did.

This student opted to place her poem over an image. This was an option provided to them through a slideshow presentation.



ing an article on the Industrial Revolution, a journal entry from a renowned veterinarian journal, a letter written by a founding father, or any piece of writing from a number of textbooks, magazines, or online resources," said Eick.

Adaptability of Instruction:

This assignment works well for a substitute teacher lesson plan. Being a teacher in agriculture may require being gone for different competitions at the regional, state or national level. This assignment can also be adapted for special education students. A simpler article and extra guidance may be required.

This assignment can apply to any agriculture class. Mr. Eick tried this activity with his intro to agriculture students, youth leadership, and food, plant, and animal science courses. His mechanical students posed a challenge as they are more hands-on learners.

Songs and rhymes have been used to remember capital names in geography; this assignment is no different. These poems can be used to help students remember layers of soil, breed names, weed names, or material uses. The assignment can also be shifted to focus on social injustices, politics, or human and animal rights. It is up to the instructor to choose the theme or subject of the poem. The blackout poem assignment allows for in-class discussions.

Instructional Value:

This project can be used as a communication tool, as well as a connection to agriculture and english fundamentals. Mr. Eick's example was, "my selection of topic was hunger; the students' message was found within existing periodicals and then shared on the walls outside my room as a display." This allows students to dive into the world of agricultural communication. This project is successful because students read their articles over and over again when looking for their poem.

The assignment allows students to be creative, work on their problem-solving skills and improve their reading comprehension skills, without the students needing to generate their own words.



Kennedy Foster is a junior majoring in journalism at South Dakota State University. She is passionate about telling stories through writing and digital media.

Sound of Learning: Students Build Personalized Acoustic Speakers

Submitted by Kelsey Williams, ID
Student author: Faren Bebeau

COVID-19 prices left a high school teacher eager to find an alternative for an interactive classroom project. Kelsey Williams, a 9th grade shop class teacher, has found ways to adapt and overcome, for the betterment of her students' success.

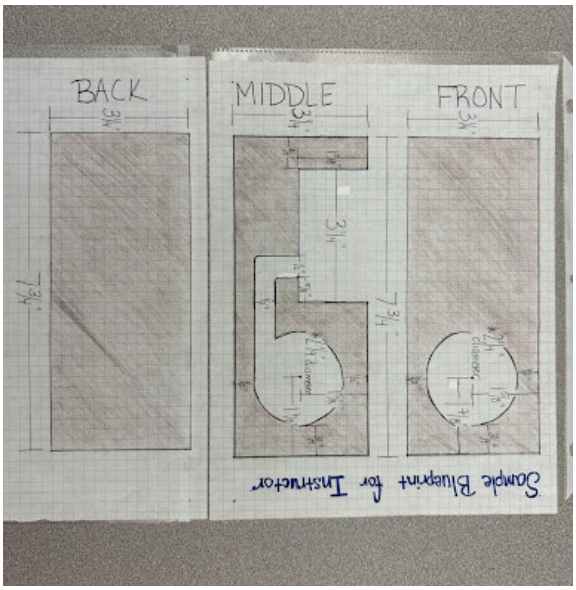
The lasting effects of COVID-19 prices made finding ways to create interactive design projects that are also cost friendly seem like a somewhat impossible task. School budgets only allow educators to spend a certain amount per classroom, which means each educator must tailor their class towards what they can afford. Originally, the wooden toolbox design that she used in previous years' classes would have cost $20 per student. The new design of a wooden acoustic speaker costs only $8. Having more than 130 eager students, the cost would have been quite significant and out of reach.

The acoustic speaker design is practical and specific to each student. Students are required to sketch their entire project true to size and frame for their own device. They are then given three pieces of wood that act as a front, middle, and back. Their creativity is put to the test when they are asked to draw their own blueprint with measurements included. This requires adding and subtracting fractions to make sure the phone will fit while keeping every piece of the remaining wood at least ½ inch wide, ensuring that the sound will funnel correctly.

Each measurement made is required to be accurately reported on their blueprint sheets. Students are encouraged to use their creative freedom in choosing whether to use a hole saw for the output, or to create a unique design of their own. Allowing students to use their own creative freedom helps them not only in the classroom but in the real-world as well. Being able to cut and form the wooden hole correctly is what allows the acoustics to funnel correctly. If this part of the project is not done correctly, it may limit the level of sound that the speaker is able to disperse.

Williams enjoys getting to watch her students' brand-new speakers leave her shop. From start to finish she not only watches them enhance their project

(LEFT) Practicing blueprint designs gives students the opportunity to sketch their project and organize the layout before they start crafting it.
(RIGHT) Students were able to bring home their speaker and share it with friends and family at the end of their shop class unit.





but also develops critical skills that go beyond woodworking. Students gain skills that allow them to plan and execute. Planning, building, and using both hand and power tools allows students to gain valuable real-life skills in the classroom.

With the personalization of each project, students want to take their project home. This allows them to tell their parents and others about the great things they are doing at school and in their shop class. She finds it rewarding when other teachers or administration talk to her about the project or let her know that a student showed them in their class. Having students eager to learn in the classroom makes them more engaged throughout the duration of the project, making the process enjoyable instead of a chore.

The project itself can be as simple or as complex as the instructor or student wants it to be. She has students do this project at the end of their woodworking unit in her Intro to Mechanics class designed for freshman level students. Although the class is for freshmen, the design can be integrated into upper-level classes to enhance students' perspective on the speakers, allowing them to create a more powerful design. The speaker can be made in any shop with simple basic tools, which makes it easy to implement in any shop class or agriculture classroom. Her design stemmed from using the tools that were already in her shop, which is a large advantage to this project. Students have a chance to use a planar, table saw, miter saw, circular saw, jig saw, drill press with hole saw, sandpaper, stain, wood glue, pneumatic nailer, hammer, nails, as well as drilling a pilot hole for screws. Using these tools requires detailed learning and precision.

> Planning, building, and using both hand and power tools allows students to gain valuable real-life skills in the classroom.

Students tend to stay engaged throughout the duration of this project because it gives them the ability to play music louder than before from their phone. The speaker design often turns into a personal competition between students. By the end of the class students will compete, trying to make their speaker louder than others.

Although the project is fun and interactive, it also holds a large deal of instructional value. For the communicative part of the project, she has students write a reflection in AET about what they did for the project and how it went for them. Writing in AET teaches students how to take the practicality of their design and put their experience into detailed writing. The reflection acts as a service report to cover the work they did and any complications they may have run into.

Williams provides unique interactive experiences for her students. Being creative in her own course of action, she was able to provide an instrumental design for her students while changing course to a whole new design after having a decrease in her budget for her students. Her students have enjoyed the new design and have found value in the new project. Being able to have a project that they create themselves from start to finish has given them valuable experiences that make them think intuitively on their own. Williams made the sound of learning easy to implement in any classroom and has provided blueprints, making it easy for other educators to teach their own students.



Faren Bebeau is a senior at South Dakota State University majoring in agriculture communications with a minor in marketing. She enjoys exploring the different aspects of media and communications that have helped support the agriculture industry.

Incorporating Real World Skills in the Shop

Submitted by Nicole Hinrichsen, KS
Student author: Ava Grate

Fixing engines, wiring buildings or running a kitchen might not sound like classroom work, but for some students, it's the smartest start to a career. Young people entering skilled trades instead of attending a university after high school is becoming more normal and socially acceptable. To transition smoothly into these skilled trades and maintain employment, CTE classes are a great experience for students to have. Nicole Hinrichsen's teaching approach of treating students like adults encourages "real world" skill development and serves as a steppingstone to increase work ethic, motivation and cooperation.

There are five components implemented into these shop classes to give them more practicality and less routine. These components include an application and interview to enter the shop, timecards, personal days, a foreman rotation and independent job tasks. When these changes were made, the teacher found students became more engaged, connected the class to the real world and were learning things they were passionate about.

To start off before the actual process of welding, a two-week unit focused on applying for a job is required. This will involve a completed resume, basic job application and an interview. It is important that the interview is conducted by someone in the welding industry so that it creates genuineness and high effort from the student. After this, a thumb timecard reader to keep track of work time and participation will be implemented using Perkins funding. The requirements are that students must clock in once they are ready to weld, and they are not allowed to sign out until their shop is clean. With 50-minute classes, 43 of those minutes logged in will grant full participation points. This method will increase students' soft skills by using the timecard. For personal days, it is crucial that these days are granted as a disciplinary or reward system. Throughout the four quarters of the school year, there will be 10 personal days given out. If you use more than the given number of personal days, you must complete 15 bookwork questions for everyday you miss.

One of the biggest skills jobs look for in employees is leadership. Because of this, the 'Foreman Responsibility Checklist' will be given out to a new student each week. This checklist accounts for the last seven minutes of class where the student must watch the clock and call clean up, assign tasks to all students and complete the checklist of duties. Another skill that is important is responsibility. A task sheet will be given out in the first semester of skill welding. This task sheet has goals mapped out so that the

> "No matter what class you teach, showing how the workforce operates helps students pick up skills they can use in lots of different jobs and prepare for the future."



Students are clocking in with fingerprint scanners to keep track of hours and participation, bringing a bringing accountability and real-world skills to the ag classroom.

students have an idea of what is expected of them. Students must get at least 90% of the skill that they are on to move on to the next task. The task sheet is explained early in the semester, and it is up to the student to move at their own pace and ability.

These ideas can be applied to any hands-on course where there needs to be something tangible to evaluate and grade. However, this class is primarily designed to be driven by participation. With so many different concepts of shop class, there are many different ag courses that these concepts can apply to. Some examples include, students can clock in and out of a livestock barn or greenhouse, the use of personal days help eliminate the need for make-up work through books or worksheets when the rest of the class spent the day learning through hands-on activities and creating a foreman system can help classroom management and take some responsibility off the teacher. No matter what class you teach, showing how the workforce operates helps students pick up skills they can use in lots of different jobs and prepare for the future.

The concept of these ideas is to promote responsible behavior while discouraging negative behaviors at the same time. Not only do students have better behavior, but they are more respectful all around. The expectations that are assigned to them enhance ettiquette and professionalism. The implementation of these five components does take a little extra time out of quarter one, but it promotes productivity and increases practical, educational gain far beyond the current school year, which is worth it.



Ava Grate is a junior majoring in public relations at South Dakota State University. She is passionate about helping brands connect with their audiences through creative messaging and storytelling.

Crack the Case Using Critical Thinking with Your Students

Submitted by Joe Ramstad, MN
Student author: Lucey Sonday

It can be hard to keep students engaged in the classroom, but incorporating classroom activities can help combat this boredom. Region III winner, Joe Ramstad from Minnesota, uses murder mystery cases following Agriculture, Food & Natural Resources (AFNR) scenarios to help students envision and learn about agriculture. These cases help build classroom culture while encouraging students to use communication and problem-solving skills.

Before solving can begin, the objective and rules should be explained and posted somewhere in the classroom for students to look back on. Students work together to solve all the questions given for the mystery. If incorrect answers are given, depending on time, they can work together to figure it out the second time. There can be a reward for correct answers; for example, candy or extra credit points. Following the activity, students can have a class discussion reflecting on the case before diving into the coursework.

Seven different cases cover a range of topics to fit into your curriculum, including clues and instructions. These instructions and clues will need to be printed off and distributed to students in the classroom for them to solve the "mystery". One case covers the mysterious death of Henrietta, the chicken. Her body was found in the football field, and it is the students' job to figure out who or what killed her. The other mysteries include a fire in the school forest, a sick teacher or animal, dying plants, stolen money from a till, and destroyed equipment in the agriculture shop. Students will utilize their deductive skills, food science knowledge, and learn more about plant deficiencies. Some of these scenarios are real tragedies that are faced in the agricultural field.

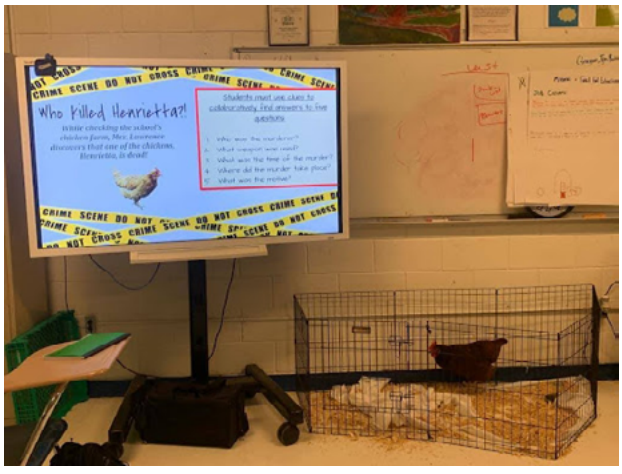
Creating a crime scene environment with police tape is a fun option for younger students. Every student will receive one clue. This can be adapted to two clues per student for smaller class sizes. These mysteries have been successful in classes ranging from 5-37 students. The objective is to solve this mystery by working together in your group. Clues cannot be "shown" to other students; they need to be verbally explained. An answer can only be given when all students are in agreement.

The best part about solving these mystery cases is how practical it is. The only resources needed are printouts of the clues and time to solve. These can be made reusable for different classes or for solving another case later in the year. Social interaction is required between students because they cannot solve it without all the clues. The activity can easily be adapted for different reading levels. Students with disabilities can always partner up with another student and still participate.

Easy adaptations can be made to the mysteries by adding more clues or changing the terms given in the clues to tie them back to the coursework. This works well for an introductory activity because teachers can gauge the current interest or knowledge students have. This is a unique way for teachers to introduce learning topics to the class and have students apply their knowledge.

All seven of the mysteries cover at least one of the main AFNR content areas, so it is easy to incorporate into a class curriculum. AFNR content areas include

> These cases help build classroom culture while encouraging students to use communication and problem-solving skills.

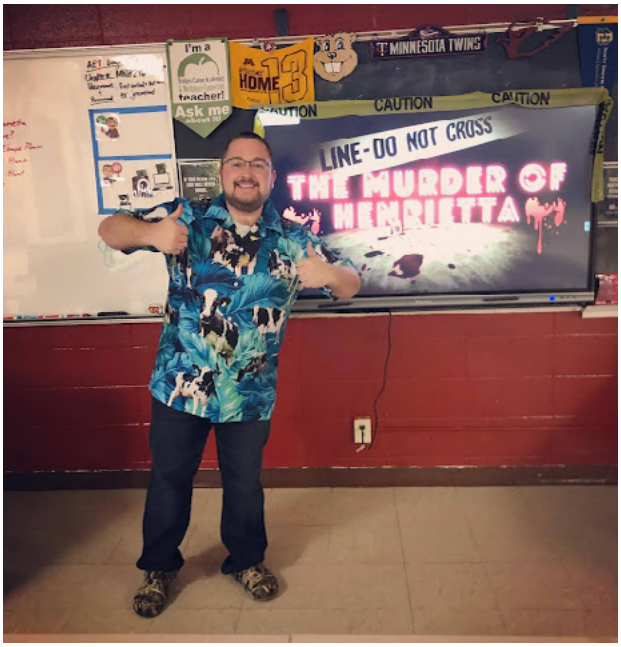


One way to display instructions to your detectives.

agribusiness systems, animal systems, environment and natural resource systems, food systems, plant systems, and power, structural, and technical systems. The mystery of the stolen money involves learning how to maintain financial bookkeeping and secure assets. Students learn more about food systems as they explore how their teacher became sick. Two cases that involve sick or deceased animals can be used to introduce animal systems content.

On top of AFNR, basic standards for students can be met in other content areas. Students learn how to communicate effectively during a crisis and apply research skills. Pattern recognition is used to solve these mysteries. Teamwork and leadership skills are honed in every mystery case as students work together. They can observe the economic or social impact of these cases. Also, students learn how they can apply Ag to life science topics such as ecology and plant growth. It is best to apply agricultural learning in a hands-on or tangible way. Connecting agriculture to other areas of study helps students learn more efficiently.

Class lectures don't need to be monotonous when you start off the year with a classroom activity. A teacher's job consists of helping prepare their students for their future careers and creating a scenario where they can practice applying their communication and critical thinking skills. Creating an environment where students are comfortable with each other allows them to voice their opinions. These mysteries are classroom activities that host a variety of learning opportunities for all students without changing the curriculum.



Setting the scene for Henrietta's murder case.



Lucey Sonday is a senior at South Dakota State University, completing her degree in Public Relations. She is passionate about writing and helping raise funds for the Children's Miracle Network Hospital.

Modeling Asexual Plant Propagation with Pool Noodles

Submitted by Taylor Wilkinson, IL
Student author: Emily DeCock

Demonstrating horticulture practices in the classroom can greatly increase student comprehension. However, it's not always a viable option due to high costs of plants and other materials. Providing high-quality, low cost to student populations in the Career and Technical Education fields can become stressful. Illinois agricultural educator Taylor Wilkinson shared how an unlikely material - pool noodles - can assist educators when teaching grafting in the asexual plant propagation process to help combat these issues.

Asexual plant propagation is a type of plant reproduction using roots, stems, or leaves of a parent plant. Asexual propagation produces a genetically identical plant to the parent plant. The major methods of asexual propagation are cuttings, layering, division, and budding/grafting.



Students worked in groups to craft their pool noodle grafts in Wilkinson's classroom.

Both an art and a science, grafting combines tissues from two different plants so they grow together as one. While making sure student safety is prioritized, demonstrating asexual plant propagation can be tough. To practice grafting, clean, angled cuts must be made on a typically small surface area. The grafting process can be difficult and unsafe for young students or those with less skilled hands. Making cuts in the small stems of plants can be tedious and must be very specific.

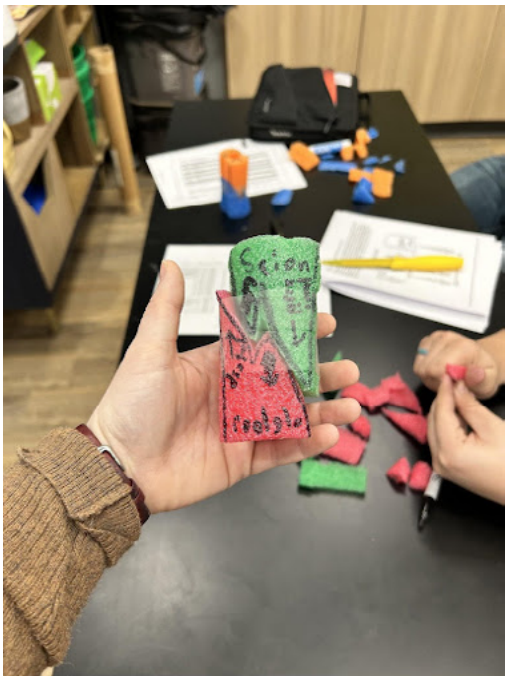
This is where a summer water toy comes in. Using foam pool noodles to practice cuts required for plant propagation limits the risk of injury because students have a larger surface area to work with. Additionally, students can see different grafting types easier. Using larger, more regular shapes teaches students the principles of grafting so students may learn on a larger scale rather than practicing on small, irregular, expensive, and easily damaged cellular tissue Varying colors of pool noodles helps students differentiate between the two "plants" they are simulating. The material is more durable and forgiving than a real plant would be.

Another way this project helps sustainability for teachers is the price of materials. Grafting tools can become expensive. Using foam pool noodles to practice grafting allows students to get multiple reps of grafting practice for a fraction of the cost. All students need to do is simply pick a grafting type, make the proper incisions, and insert or attach the scion (a detached, living portion of a plant), or rootstock (the lower part of a plant, including the root system). Other than learning about plants, this lab gets students experience with knife-safety, spatial awareness skills and eye-hand coordination. As a bonus, students have the ability to create a product they can take ownership of.

Other tool requirements include painters' tape to represent grafting tape and a ceramic or plastic knife.

The lab can be adapted for different grade levels as well. A

> Using pool noodles to learn about plant propagation allows agricultural educators to engage students in hands-on activities without breaking the bank.





(LEFT) Replicas help students visualize complex cell processes.
(RIGHT) Students created different pool noodle combinations showing adaptability between plant genus and species.

pool noodle with a hollow center and one without a hollow center could be used to discuss the adaptability between plant genus and species, as grafting must be accomplished within the same plant family. Additionally, students can engage deeper by varying the widths, density, and colors provided.

Not only does this lab teach students about horticulture, it also touches on other core curriculum skills that cross into other learning outcomes. Geometric principles such as calculating surface area and measuring cylindrical objects are needed and expanded upon in this grafting activity. Grafting is directly involved in plant genetic and hereditary principles, which is required by Next Generation Science Standards (NGSS).

Using pool noodles to learn about plant propagation allows agricultural educators to engage students in hands-on activities without breaking the bank. This lab can be adapted for all grade levels. Pool noodles are easily accessible at local dollar or department stores – no need to source plants from a nursery!



Emily DeCock is a senior studying journalism at South Dakota State University. She plans to pursue a career in journalism and is the editor-in-chief of Collegian Media, SDSU's student media.

Harvesting Work Ethic: Inside the AgOP Classroom

Submitted by Allie Crocket, GA
Student author: Lydia Hill

The morning bell rings as students trickle into the classroom. Only instead of pulling out textbooks, they are punching in timecards. Allie Crocket, a high school ag teacher in Georgia, noticed that her students lacked simple competencies needed in the workforce. Showing up to work on time, following regulations, and staying off their cell phones are just a few to name. Employers look for people with basic soft skills, which is something Crocket plans to teach her students before they walk across the stage and out the doors.

Soft skills aren't something that can just be taught, they have to be practiced. For Crocket, that meant flipping her classroom upside down and during it into a "job site". With this job site, she created the Agriculture Occupation Program (AgOP) to prepare students for real world job expectations.

On day one, Crocket established her ground rules for her job site. Students had to create resumes, fill out job applications, and interview for various roles. Few would be hired as the foreman and mid-level managers, others OSHA Inspectors, with the rest filling in as general employees. After job assignments were given out, students got straight to work.

Turning in their cell phones each day as they put on their Personal Protective Equipment (PPE) was the first step to each day. Then, the students, now employees, are officially clocked in. Employees can fill out grievance forms just as they would in real life situations. OSHA inspectors can fill out safety violation forms with managers and foreman filling out non-compliance or bonus recommendation forms. Employees are compensated weekly with "Ag Bucks", which they can use in the class store to buy drinks, food, or other small items. On the contrast, employees can also be docked pay for absences or late work, similar to a real job site. Along with Ag Bucks, she praises her employees for their hard work with an Employee of the Week wall.

For Crocket, the benefits are bountiful. Though she is still the main overseer, or "site boss", she finds more time on her hands as employees pick up more re-





(LEFT) High school ag students learn about different tools and aspects to the job firsthand as they complete daily tasks in the Ag Occupation Program (RIGHT) Adult mentor guides students through the Agriculture Occupation Program, where learning mirrors real-life job expectations.

sponsibilities and help to manage each other. Employees learn the value of written communication through resumes and job applications and the interviews teach them the value of oral communication. Basic math skills are applied when calculating weekly paychecks or learning how to budget with the incentive being the class store. Interacting with colleges, working together, and promoting school attendance are just a few ways Crocket has fine-tuned her employees career skills.

Through AgOP, Crocket has received an outpour of support from administrators and the community. Local businesses have supported Crocket's "job site" by donating items for the class store or money to help purchase items. Administrators value Crocket's initiative and even help out by conducting interviews for the students during their hiring process.

This program isn't just teaching the students the benefits of soft skills. It is instilling in them the power of their potential. Crocket's goal with this program wasn't just to better the chances of success for her students, but for students across the country. That is why she made an easy step-by-step job site plan, to share with educators nationwide in hopes they could also benefit. It is designed intentionally to be a simple resource that teachers alike can turn towards and lean on to change up their teaching methods, take some weight off of their own backs, and make a lifelong impact on each student that walks across that stage and out of the door.

> This program isn't just teaching the students the benefits of soft skills. It is instilling in them the power of their potential.



Lydia Hill is a junior majoring in agricultural communications and journalism at South Dakota State University. She aspires to be an agricultural broadcaster and reporter, specifically within the rodeo industry.

Wool Processing Lab

Submitted by Lisa Boltz, PA
Student author: Emma Heiden

Are you looking for a shorter yet valuable lesson plan for your students? Well, Lisa Boltz created the Wool Processing Lab in a unique way to connect students to agricultural products. This lab helps students learn about the qualities and processes of wool. The lab will not only help students learn about wool but use skills like math, communication, science and interpersonal skills in agriculture.

> While the process of making wool into yarn has been around for centuries, this lab is fresh and novel for students because no other class can cover this information within a high school setting.

Tools Needed

- Wool - Donated
- Quart Size Ziploc Bags
- Tweezers
- Small scissors or cuticle scissors
- Mesh Laundry Bags
- 20-quart (5-gallon) stock pots
- Hot plates
- Dish Soap
- Salt
- Paper towels
- Pet slicker brushes
- Roll of yarn
- Chain link fence ties
- Nylons

Starting off the lab, the first day, students will look into how wool is processed, basic breeds, vocabulary, and anatomy. They will create a foldable with six boxes titled Producing, Shearing & Grading, Skirting, Scouring, Carding, and Spinning. While summarizing each of these processes in the boxes, they will also draw out graphics. Ending the day off, students will review each process and pull their wool. It is suggested to use two different kinds of wool.

The second day, students look into Shearing, Wool Grading, and Wool Characteristics. The Penn State Cooperative Extension video, "How to Shear a Sheep," can be viewed to learn more about the process. After the video, introduce the three different types of grading and the difference between them. The best method found to do this was conducting a visual grade of the wool. When conducting the visual grade of wool there is a few key factors to look at. Those would include, crimp, color, and much more. There are many resources from different university to utilize.

After the research is completed, students evaluate their wool's color, length, smoothness, and fineness. To wrap up the second day, we discuss as a class what characteristics of wool make it a superior textile and discuss wool products that benefit from these characteristics, such as flame-retardant blankets or wool clothing.

Skirting and scouring are the main topics of the third day. Starting the lesson off by discussing lanolin as a byproduct, as many notice the greasiness of the wool. This will lead to how to remove lanolin, which will be worked on during this lesson. This step begins the data collection for the lab. Students find the beginning weight in grams of their wool before skirting. Using tweezers and small scissors, students remove debris and unusable wool, then weigh it again to measure the loss.

Students place their wool in a mesh bag that is labeled in some way. It is best that students go to scour their wool as soon as they are finished skirting, as this prevents all students from going at the same time. Students first use a saltwater bath in simmering hot water, not boiling. This removes most lanolin and can be utilized once the water cools. Then, students place their wool in water simmering with Dawn soap, followed by hot water in a bucket with rinse water. This process, when done correctly, removes all the lanolin. Students are prompted to ring out their wool, press it as dry as they can with towels, and set it on top of their Ziploc bags to air dry.

Ideally, the final day of this lab would come after a weekend to let the wool get a full day of air drying. On this day, the students will be making their dryer balls. Before they start the carding process, the students will weigh their wool to determine the weight of lanolin lost. Before starting the carding and spinning process, a video was shown to demonstrate

how to use the dog slicker brushes to get the wool carded and form a rolag. Around 30 minutes of work time should be needed before assigning one group member to start on the wool ball core for the dryer balls. Once the core is made, students can hand-spin their wool around the dryer ball. To get the final weight of the wool, because small debris is removed in the carding process, students weigh their rolags prior to spinning them.

The process of turning wool into yarn has been around for many years and not many people these days have the opportunity work though the process. As this course is focused on high school students, they are able to gain hands-on, real-life experiences.

While the process of making wool into yarn has been around for centuries, this lab is fresh and novel for students because no other class can cover this information within a hig school setting.





(LEFT) Students use a variety of tools to help them clean partials out of the wool.
(RIGHT) Once cleaned, wool is made into reuseable dryer balls.



Emma Heiden is a junior agricultural communications major at South Dakota State University. She is passionate about the agricultural industry and sharing its story.

Pressed Flowers, Fresh Ideas: Teaching Ag with Creativity

Submitted by Hannah Schneider WA
Student author: Meredith Peterson

Vibrant pinks, yellows, and purples surround the classroom, each table is full of flowers, leaves, and stems. Students are making noise, but with hammers instead of their voice. Creativity and science are at play.

If you're looking for an engaging, creative, yet inexpensive lesson for your students, Flower Pounding might be right for your classroom. Hannah Schneider is a District I high school agricultural science teacher in Washington state. Schneider developed this project for her Floral Design class, but knows the lesson could work within Natural Resources, Horticulture, or Agricultural Biology. She considers flower pounding as a "unique approach to using flowers, petals, and stems to teach students science, art, and collaborative skills."

Flower Pounding is the process of putting pressure on fresh flowers and stems to create an imprint onto a transfer material. When flowers are imprinted, students will see the same colors and shapes from the plant. First, gather your supplies: a hammer or rubber mallet, flowers, something to transfer the flower to, paper towels, and a hard surface. Your transfer material could be watercolor paper, printer paper, cardstock, a white shirt or sweatshirt, bookmarks, greeting cards, or cloth napkins.

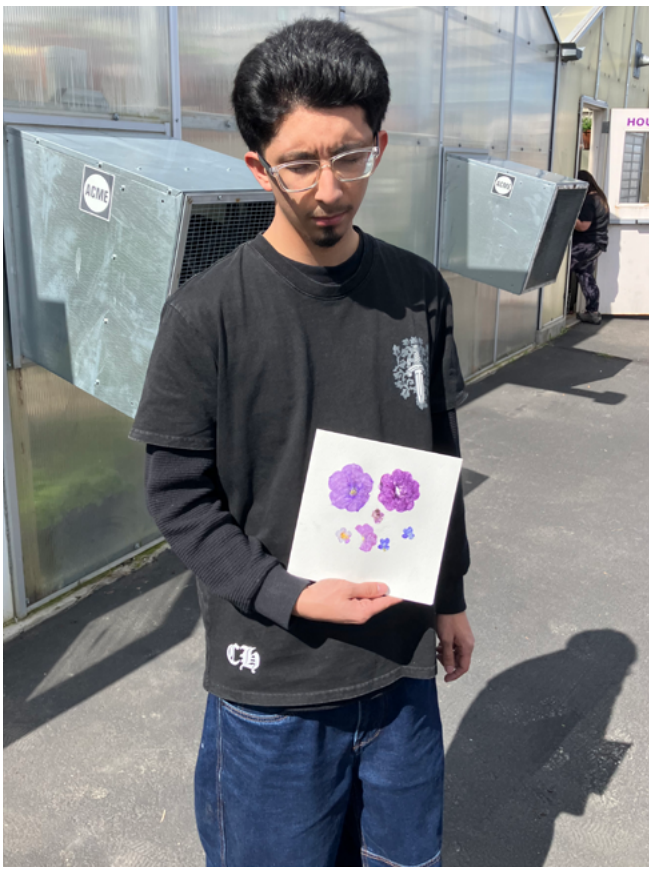
Next, guide your students outside to your school's greenhouse, your town's nature park, or simply outside your school building. Have students pick enough flowers to create their collage. They'll like a variety of plants for more creative choices once they start working.

Once your students have chosen their plants, have them lay out their transfer material and flowers on desks or tables. Students can then place flowers in a layout they desire onto the transfer material and begin hammering the plants until an imprint is created.

This process is beneficial for students because they can learn how to deadhead flowers (the process of removing the tops of flowers to encourage plant health), review plant structures, and plant identification. When picking plants, encourage your students to identify each flower, stem, and leaf they pick up. When implemented, students will start talking to each other about plant names, even suggesting flowers to use in each other's collages.

Students can also learn elements of design that form the basis of artistic expression. When creating their collages, students should design them in a way that adheres to the principles and elements of floral design including repetition, harmony, unity, color, and pattern.

This lesson is beneficial for educators because it is cost ef-



A student holds their finished flower pounding project.

"She considers flower pounding as a "unique approach to using flowers, petals, and stems to teach students science, art, and collaborative skills."





(LEFT) Students working outside on their flower designs.
(RIGHT) An array of flowers and transfer paper, along with an in-progress flower pounding project.

fective; when budgets run low towards the spring, flower pounding can be less expensive than floral arrangements. Hammers and mallets can be borrowed from shop classrooms; flowers can be sourced from your school's greenhouse or outside.

Flower Pounding is a great activity to implement into your classroom because it is simple, creative, and can help students engage well with plant morphology. Schneider says, "Sometimes teaching plant science, specifically plant morphology, can be slightly boring and disengaging. Adding in flower pounding can help students enjoy learning about flowers, petals, and stems!"



Meredith Peterson is a junior Public Relations major at South Dakota State University. She is passionate about PR and advertising behind the beauty industry.

Students Helping Students: SAE Mentoring Program

Submitted by Jake Rutledge KS
Student authors: Kennedy Foster & Meredith Peterson

Supervised Agricultural Experience or SAE's are often a stressful experience for both educators and students. The solution to these stressors can be SAE mentoring.

Educator Jake Rutledge has developed this program to enhance and improve SAE's within your FFA chapter. He says, "This creates less chaos for ag educators and allows us to take more time to focus on the quality of SAE programs, rather than just getting by and making sure every student has an SAE."

Some of the overall goals of SAE Mentoring are as followed: Opportunities for FFA members who normally wouldn't work together to connect. It encourages FFA members to get started on their SAE's early on. The program gets more members of FFA interested in their SAE. It focuses on developing detailed SAE record books, allowing mentors to help guide their mentees through that process. The last goal of the SAE mentoring program is to complete more SAE visits throughout the year as a chapter.

SAE Mentoring includes 6 components throughout the year. It starts with an introductory SAE mentoring meeting. Next, they have a SAE grant work night where the students learn how they can raise money or work with community members for grants. The SAE visit is where the mentees meet their mentors' established SAE and learn the ins and outs of how they got to where they are now. The introduction to the record books meeting is where they learn what they need to keep records of and how to do that through the AET website. Record book work night happens as their SAE is coming together, and they are recording their grants and funds.

> This creates less chaos for ag educators and allows us to take more time to focus on the quality of SAE programs, rather than just getting by and making sure every student has an SAE.

Navigating the AET website can be tricky, especially with individuals who have never used it before that are working on a topic as detailed as record books. High school agriculture teacher, Jake Rutledge says "there isn't hardly a way to reach all 25 freshmen in the room in 45 minutes, but with the help of knowledgeable SAE mentors- we can." Lastly, the mentorship program ends with an SAE visit where the mentor sees how far their mentee has come along within the program.

The SAE Mentor program is universally sound, when using



(LEFT) Group of students holding awards.
(NEXT PAGE) Example of SAE visit form for mentors to visit mentees.

Chapman FFA SAE Visit Form- SAE Mentors

Name of Mentee: _____ Date: _____

Name of Mentor: _____ Time: _____

SAE Project Title (Ex.- Sheep Production): _____

What does the mentor/mentee do well in their SAE?

What does the mentor/mentee have room to improve on in their SAE?

Recommendations for mentor/mentee:

Goals to grow/improve SAE:

1.

2.

Mentor Signature: _____

Mentee Signature: _____

Parent Signature: _____

FFA Advisor Signature: _____

Additional Comments (concerns, thoughts, tips, etc.): ON BACK

a 3-circle model (Classroom Instruction, Supervised Agricultural Experience, and FFA Leadership). This program can fit any state, district, chapter, or student. New educators can use the mentor program to build a foundation for their chapter. Seasoned educators can utilize it to revamp or reorganize their students' SAE's. Instructors may use this program to give middle schoolers or freshmen a head start. This mentor program can be easily manipulated, changing its guidelines and goals to fit their students' schedules, needs, and knowledge-levels.

This program increases instructional value for all age types. SAE's are required to teach based on the 3-circle model and all SAE's should be high quality. There are different role requirements based on whether a student is a mentor or mentee.

This program starts in the fall instead of the usual start on January 1st. This starts by having the young students log their SAE records for each year. This allows for adequate time to learn more about what FFA is and think about what their SAE is going to be. This gives them the opportunity to fully understand their SAE and how to navigate their FFA/AET login. The AET website can be confusing to navigate as a young student, so their mentors can guide them through the process. The younger members also have to visit an older member's established SAE before the end of the fall semester, so they have the chance to brainstorm their own SAE.

For older, established FFA members, this program is a great opportunity for them to learn about leadership and accountability. As they navigate high school, they'll be able to continue thinking about their SAE. It can help them stay on track with SAE grants and funding, and the growth of their own SAE.

Implementing a mentor program allows SAE's to be established early on. SAE's will be higher quality and more thought-out programs. By using the mentor program, it allows students to keep their records up to date as it is graded at the end of each week. This also increases the balance of the 3-circle model. Students spend less time questioning what an SAE is, and more time improving their skills. More SAE's are visited each year with more ideas flowing, which allows students to get creative with their ideas and think of something that has yet to be done.

SAE Mentoring is a beneficial program to implement for your chapter because it is less work on the teacher. The program allows teachers/FFA advisors free time to work on LDE's, CDE's and FFA fundraisers. If you are implementing this program to your chapter for the first time, make sure to put a lot of time and effort into SAE's so when the students graduate to mentor status, they are fully capable of explaining what they learned and got out of the program to their mentee. By having a strong understanding of their SAE, students will be able to teach and lead the younger generation of FFA members to success.



Kennedy Foster is a junior majoring in journalism at South Dakota State University. She is passionate about telling stories through writing and digital media.



Meredith Peterson is a junior Public Relations major at South Dakota State University. She is passionate about PR and advertising behind the beauty industry.

Bringing the Sale Barn Buzz to the Classroom

Submitted by Toni Rasmussen, NE
Student author: Brianna Sieve

Are you looking to make your animal science curriculum stand out? Try this sale barn lesson created by a District III teacher, Toni Rasmussen from Nebraska!

In the feedlot industry, sale barns exist as a marketing place for cattle producers to buy and sell cattle. By bringing the sale barn experience to the classroom, students get to step into the role of cattle buyers by bidding on cattle. Problem solving, evaluation, and cross-curricular math skills are essential for a student's knowledge toolbox; this sale barn lesson encompasses it all, making it a practical lesson for any agricultural educator. All that is needed is Wi-Fi access, the ability to display sale barn information, calculators, and worksheet copies.

To start, each student receives a worksheet that outlines a buying scenario, which was created by Rasmussen and linked here. They are given a formula to calculate their specific budget per head. Using that and their cost of gain per head, students can then figure out the maximum price for their spending budget. By calculating their answer with the starting weight of the feeder calves, the breakeven can be figured. This helps set the stage for realistic decision making before the auction even begins.

Next, the teacher takes on the role of both the auctioneer and clerk. Using an online auction website such as Cattle USA or LMA Auctions, students get a bid number of their choice and bid on animals in real time. Each student is given a goal of how many head of cattle they can purchase within their budget, which they figured out earlier on their worksheet. Bidding might get competitive, but that is part of the fun!

Once the buying is complete, students return to their worksheets to run the numbers. They then can calculate total purchase cost, cost of gain, projected revenue, and net profit. Students also can have an opportunity to use a premium (yield, grade, marbling, etc.) to add to their revenue, using a wheel of names to choose who gets which one.

This activity fills an important gap in many agricultural education programs. These programs' existing beef curriculums typically focus on cow/calf operations and butchering, but information lacks on the feedlot sector. With an increased amount of exported beef, knowledge of this industry is extremely valuable for everyone in the United States.

There are several opportunities to extend the curriculum, making it adaptable across classes such as Animal Science, Large Animal Management, Intro to Agriculture, and Agribusiness. Teachers can dive into the subject deeper by having students calculate cost of gain through feed ration comparisons, discuss why heifers typically sell for less than steers, or explore how selecting animals impacts profitability. Students can also be taught auctioneering skills by watching YouTube tutorials or listening to





(LEFT) A student discusses with a potential cattle buyer about animals coming in the sale ring.
(RIGHT) A bird's eye view of West Point Livestock Auction in West Point, Nebraska.



A group of students from Toni Rasmussen's ag program pose in front of an auction barn.

> With an increased amount of exported beef, knowledge of this industry is extremely valuable for everyone in the United States.

podcasts; this would be a great communication component to add to this lesson, which will build confidence with public speaking.

The lesson can easily be modified to focus on other livestock species such as sheep, goats, or hogs, or be adjusted to reflect the current market conditions. Teachers can also incorporate discussions on supply and demand, the volatility of the market, and trade agreements to help students with understanding the larger forces of economics at play.

For hands-on learning, a visit to a local sale barn or feedlot can help students connect the classroom concepts to a real operation. A possible consideration for teachers to empower students is allowing them to organize the trip by calling the sale barn, contacting school administration for transportation, and organizing make-up reports for those that might be going. This will further expand the learning experience and teach students how to plan and organize events.

The sale barn lesson also emphasizes key math concepts, including budgeting and calculating revenue. Students get to build problem solving skills as they manage their budgets and make decisions based on the changing market conditions. Beyond math, the activity incorporates important animal science concepts. One example used in Rasmussen's classroom was a class discussion about lame animals and other disorders that were seen in the auction ring, as well as identifying how to treat illnesses - connecting it to their veterinary science curriculum.

Communication is another key element found in this classroom activity, with determining who is bidding and who has won the bid. One discussion with students can be about the purpose of the auctioneer, the other roles, and communication within the barn. Some required points of contact seen in the sale ring are the auctioneer, ring leaders, bidders, and communication with the cattle to move them. This can then be tied into learning about flight zones and some of Temple Grandin's work with livestock movement and animal husbandry.

With this sale barn lesson curriculum, teachers can bring the energy of the sale ring into the classroom while reinforcing key concepts in math, animal science, agribusiness, economics, and communication. By having students step into the role of cattle buyers, they can apply critical thinking in a hands-on way that mirrors real industry scenarios. The activity can fit a variety of classes in agricultural science programs and can be anywhere from a one-day simulation to a full unit. It also creates an environment for conversations about careers in the livestock industry. With minimal setup and a wide range of flexibility, this lesson not only deepens student understanding, but connects classroom learning to real world agriculture in a memorable and exciting way.



Brianna Sieve is a senior Agricultural Communications major at South Dakota State University. She is passionate about advocating for the agricultural industry through multimedia storytelling, photography, and youth ag education.

The Living Easter Arrangement

Submitted by Annagrace Ligons, KY
Student author: Chevelle Spaulding

The Living Easter Arrangement project offers a different perspective on floral design and the practice of patience, a week in advance, while growing wheat seed.

Annagrace Ligons, a teacher from Kentucky in District IV, began the 'Living Easter Arrangements' project as a cost-efficient and easy way to teach multiple lessons around agriculture in her classroom during the Easter holiday. With the donation of wheat seeds from H A Hampton & Sons and discounted bouquets from Kroger, her classroom was able to keep the entire project at an affordable price. After the project is complete, donating the arrangements to the local nursing home is a great way to give back to the community.

The arrangements start by growing wheat or any other grass seed about a week in advance, allowing time to germinate. In this case, the grass was to mimic the grass usually found in Easter baskets, bringing in the living effect of the arrangement. During this period, lessons about germination, plant anatomy, fertilization, and watering techniques can be taught.

After the wheat has grown for the week, flowers and other elements such as candy, easter eggs, ribbon, floral wire, and picks are optional to add in, allowing the students to customize their baskets.

The Living Arrangements project can be tailored and easily fit a variety of lessons taught within the ag classroom, such as floral design, greenhouse Technology, agribusiness, marketing, and agriscience. Being able to work on a simple project such as this one is a good way to take teaching to the next level by putting in the extra thought about what could be taken from the lesson. Oftentimes students go through the motions of a project to get a grade, but by adding in multiple lessons along the way, they can expand their thought process.

Experimenting with different grasses, mathematical concepts through calculating materials and budgeting, germination and anatomy of the plants, and communication while working together to build the final arrangements are some of the concepts that can be taken from this project.

Teaching students the importance of budgeting is crucial for knowing the importance of planning, understanding the value of a need and a want, and taking responsibility. Learning these budgeting skills helps prepare students for college or going out into the real world after high school.

By knowing how plant germination and anatomy work, the students can understand biology and how ecosystems work on a deeper level. This is important because they are then able to understand the reliability that

Living Arrangements, bringing in the Easter spirit with elements including bunny cutouts and eggs







living things have on each other in their environments. Along with being knowledgeable about the effects that humans, pollution, and other environmental factors play in our world.

Working with different grasses, students can identify them and learn how to use different watering and fertilization practices. Knowing different watering practices is important to tell if you're underwatering, which can cause root damage in the long run. Using the wrong type or amount of fertilization for grass and other plants can lead to poor soil health and problems with the plant further on in life.

By teaching good communication skills early in the classroom, you can set your students up for success in the future. Having good communication skills in the classroom helps the students collaborate, build confidence, and share clear ideas. This is also very important when it comes to the agriculture community because there are many different jobs within the field that work together. Working on marketing products, explaining ideas and making sales to customers, and sharing information about science and technology. By teaching communication in the classroom, you are setting students up with professionalism in any career field, being leaders, and solving problems.

Visual Art Standards could also be added, making it more fitting for teachers whose classes offer art credits. Visual Art Standards are important for student development because they allow them to think critically and out of the box, and they get to express their feelings, technical skills, and motor skills depending on the activity. These are all important because the students have to put in more work than just following a step-by-step guide to achieve a good grade.

> The practicality of the Affordable Easter Arrangement project lies in its versatility and affordable and easy-to-locate materials.

After the arrangements are finished, having students present what they learned, found interesting, and challenging is a good way to get all students talking in a group setting. Having the students reflect on what they found interesting helps them to think about what they didn't know before, becoming engaged and asking questions. Having students explain what they found challenging helps them to understand where they could improve for next time. By doing this, students are able to gain a better understanding of their learning style. Some people are better at learning when it is hands-on, others when it's by hearing it, and some by just seeing it. By knowing your learning style, you are able to do it faster and more effectively. It also allows you to work better in groups and can help you to improve your grades in school.

Another great lesson to be brought in would be to have all the students work to figure out calculations on how much profit they could bring in if this project were to be sold. Understanding how to do these calculations is important because it helps the students to make smarter decisions, problem solve, and real real-world values. It teaches them to know if they are being successful or not, coming up with set prices, and knowing what they could do if they did start to lose money. These skills are important not only in the retail world but also in your own personal finances.

The 'Living Easter Arrangements' are a great way to teach multiple lessons within agriculture, science, math, and art. Students also gain skills, including communication and design work. Just one week of patience and teamwork is all it takes.



Chevelle Spaulding is an undergraduate student at South Dakota State University, pursuing a degree in Agriculture Communication. Chevelle is an aspiring entrepreneur pursuing a career in freelance photography.

Agricultural Supply and Demand Great Food Truck Race for Middle School

Submitted by Leah Strawbridge, GA
Student author: Taylor Tennant

Leah Strawbridge, Region 5 winner from Georgia, teamed up with middle school students to show that agriculture is about much more than just farming. Many students first think of a farmer in a field or driving a tractor when they hear "agriculture," but she introduced them to the many other jobs and careers that make the industry work. She helped students understand that agriculture includes services, processing, packaging, distribution, marketing and sales, showing how each part contributes to the food system.

Her lessons explored the different careers beyond production. Students learned how processing facilities turn raw commodities into products ready for consumers, how packaging operations prepare items for shipping, and how distribution networks move goods across the country. They also learned how people promote and sell these products to customers. By breaking down these roles, students saw that agriculture involves much more than just planting and harvesting. They learned it also includes a variety of jobs that keep food moving from farm to table.

She asked students to think about where their food comes from and explained that not everything in grocery stores is grown in the United States. Students talked about foods that cannot be produced here, like certain fruits from warmer climates, and connected this to what they have learned in social studies about imports and exports. The activity helped them see that agriculture extends beyond local farms and is part of a larger system that connects to markets around the world.

Once students understood the bigger picture, they were introduced to supply and demand. Students learned that agriculture depends on the relationship between farmers and consumers as farmers supply goods, and consumers create demand for those goods in the market. Students also learned that demand is influenced by what consumers want, while supply depends on how much of the product exists at that time.

To give students a hands-on way to use these ideas, she created the Agricultural Supply and Demand Great Food Truck Race. The project let students experi-

(LEFT) Students presented their proposed food service ventures including plans for sweet items like a sweet smoothie, vanilla cupcake, peach cobbler, peach ice cream and pastry paradise as well as savory items that included Paraiso de la salsa, chips and guacamole, avocado street tacos and Mexican street corn. (RIGHT) Students showcase their creative and business planning skills, presenting a detailed menu for their "Cakes, Cupcakes, and All Things Great" venture, complete with a model food truck.





ence supply and demand while also exploring marketing, service and how food moves from production to the consumer.

The project took about two weeks and began with students working in pairs. Each pair selected a theme for a food truck, with options including Italian, Mexican bakery or barbeque. With the theme chosen, students received two food items and scenarios that affect the availability or desirability of those commodities. They used what they knew about supply and demand to change menu prices. This hands-on activity helped them apply economic concepts they had learned before

After pricing their menu items, students were able to get creative. Each group designed a menu based on their theme and included their food truck's name and logo if they chose to make one. They also build a paper model of their food truck, cutting, assembling and decorating it to match the restaurant's style. Students were able add features such as rooftop displays or bright colors to make their trucks more eye-catching.

Next, students selected one menu item to bring in and share. They planned carefully to make sure their item was safe to serve and had to think about how they were going to present it to potential customers. This step teaches practical lessons about handling food and providing service during the project.

On the day of the Great Food Truck Race, students set up tables with their menus, paper trucks and food items. Teachers, administrators, and support staff acted as customers, and students explained their concepts and served their items while moving between the roles of a seller and buyer. During the event, each customer received a popsicle stick to vote for their favorite food truck. Votes were based on the food, menu design, truck appearance and service they provided. At the end of class, votes were tallied, and a winning truck was announced.

> "The project let students experience supply and demand while also exploring marketing, service and how food moves from production to the consumer."

The project accomplished several goals in the agriculture classroom. It reinforced lessons on supply and demand, connected agriculture to the global market and introduced students to the many careers within the industry. It also built skills in other subjects. Students practiced math, reading and writing through activities like calculating prices, interpreting scenarios and creating menus. The project blended lessons in agriculture, social studies and economics while giving students hands-on experience.

In addition to academic skills, the project gave students a chance to practice employability skills. These skills are important both inside and outside the classroom and can help students in future careers.

The Agricultural Supply and Demand Great Food Truck Race helped students understand that agriculture involves more than just farming. It showed how products move through the industry, how supply and demand work, and how jobs in marketing, service and distribution play a role. By the end, students left with a better understanding of the agriculture industry and the global connections of food, as well as the real-world skills involved in running a business.



Taylor Tennant is a senior agricultural communication and journalism double major at South Dakota State University. She is passionate about telling agriculture and campus stories through writing and digital media.

Imagination Takes the Wheel in This Float Project

Submitted by Mandy Curry, VA
Student author: Lucey Sonday & Grace Weaver

As technology advances in agriculture, educational environments must adapt to keep pace. Mandy Curry, a teacher from Virginia, turned what could have been a simple presentation into an interactive and engaging project that connected with students on an entirely new level.

Students were given the opportunity to construct a Rose Bowl Parade float using elements of coding, floral preservation, float design, project construction, and even cinematography. Because the basis of agricultural education is to learn by doing, this project opened new doors for students. It allowed them to build practical skills that will serve them well in the workforce and in life.

Students begin their Rose Bowl Parade float project by strengthening their research skills. They conduct a search on the history of the parade to compare floats from recent years and their multitude of features. Their findings allow them to brainstorm their own float ideas and observe what they like and dislike from other floats. This element of the process also offers potential to be utilized in a history curriculum as well, if programs are looking to expand the reach of this project in other subjects.

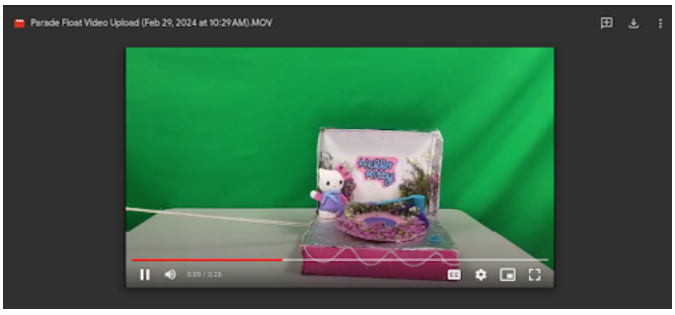
Before constructing anything physical, students need to learn basic coding concepts. Using coding kits through your school, students can develop the components. If your school doesn't have access to these kits, you can apply for grant funding for them. It is also possible for multiple projects to use one kit; however, this would take up more time. Coding is becoming more prevalent in agriculture, and students can gain experience in coding. Usually, coding is used for website designing or greenhouse monitoring, but it is important to give students the opportunity to become comfortable with coding.

Students were given ample opportunities to practice floral and float design within this unique project. They are instructed to prepare three sample float sketches and work together with a partner to create one final float design idea. The sketch had to include a theme, a color scheme, and a color-coded drawing to represent which material was to be used with each element of the float design. The Hummingbird Kit coding features would be utilized within their floats during the preparation process. The Hummingbird Kit is a tool that combines craft materials, electronics, and coding to help students design projects.

Floral preservation was taught during the design and construction process. Students learned about different dyeing and drying techniques to preserve floral materials. This made sure the flowers kept their shape and color for display purposes.

Once the students' project design was completed, building the float was next. This includes installing the motors and assembling the float structure. You can collaborate with art classes and get assistance while creating or designing the float. Students should regularly check in with the instructor for progress checks. Students can keep a journal during this process and track the challenges they face. Building the float takes up most of the time for the project, and it is normal for students to work on it outside of class. Students can also utilize their study halls for work time on the float to combat this.





(LEFT) One of the finished float projects. (RIGHT) A float video design with green screen for presentation.



Students utilize art skills for project creation.

> Agricultural education is a physical learning environment. Projects like this allow students to learn through creative expression.

Part of this project is to film and present the floats after they are done. Using a green screen, students will mimic their float being in the parade. This is where their coding practice will come in handy, and they will incorporate light effects. Students are free to use their phones if other technology is not available. Free software editing programs can be used if there is no school-assigned program to use. Canva is one example students can easily use. This is another area where students may collaborate. Students in photography or media production classes can help curate the videos or give suggestions. Once the videos are made, they can be played in class for the presentation.

Agricultural education is a physical learning environment. Projects like this allow students to learn through creative expression. This project gives students an opportunity to practice work ethic skills and problem-solving skills. Adaptivity in this project, with budget constraints, technology accessibility, and loss of time is possible. Floral materials for the project can be hand-picked or donated. These materials can also be saved and reused for the following year. Cell phones are readily available to use, and portions of the project can be adjusted for time. Students who aren't usually involved in lectures would find creating the float engaging.

This project is unique due to its versatility and ability to provide hands-on experience for students. Technology is continuously becoming prevalent in the agricultural community. This project allows students to collaborate with other content areas such as art, research methodology, coding concepts, floral preservation, history, and even cinematography. Students practice team building and time management as a group member while creating the float. Through these diverse experiences, students gain skills that will benefit them immensely in the job field.



Lucey Sonday is a senior at South Dakota State University, completing her degree in Public Relations. She is passionate about writing and helping raise funds for the Children's Miracle Network Hospital.



Grace Weaver is a junior communication studies major at South Dakota State University. She is passionate about leading purposeful organizations and creating meaningful content that connects people and supports nonprofit and volunteer efforts.

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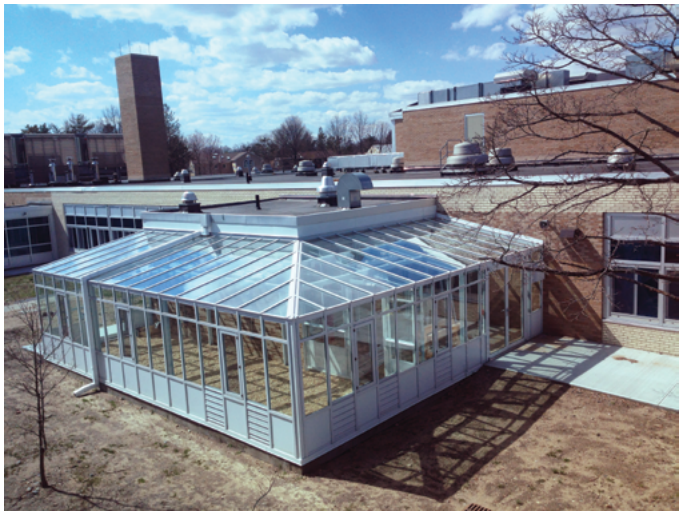

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While checking the school's chicken farm, Mrs. Lawrence discovers that one of the chickens, Henrietta, is dead!
Students must use clues to solve a murder. Find answers to five questions.
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2. What weapon was used?
3. What was the time of the murder?
4. Where did the murder take place?
5. What was the motive?
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