NEW HORIZONS

SUMMER 2019 TEACHING GUIDE



IN THIS GUIDE, YOU WILL FIND ACTIVITIES FOR SIX ARTICLES IN THE SUMMER 2019 ISSUE OF FFA NEW HORIZONS. WORKSHEET ANSWER KEYS CAN BE FOUND AT THE END OF THE ACTIVITY WORKSHEET. THE ACTIVITIES ARE ALIGNED TO EDUCATIONAL STANDARDS. (SEE EACH ACTIVITY FOR THE SPECIFIC STANDARDS.)

SCHOLARS SAY...

A compiled list of discipline-specific or academic vocabulary found throughout this issue of FFA New Horizons:

Alumni
Garnered
Recruitment
Supporters
Demolish
FEMA
Natural disaster
Postapocalyptic
Ration
Refugee
Engineering
Ethology
Innate behavior
Learned behavior
Welding
Entrepreneur
Trustee
Ambassador
Initiatives
Greenhouse gas emissions
Compost
Polarized

VOCABULARY ACTIVITY

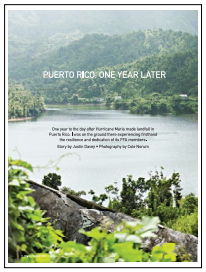
Scavenger Hunt: Hide the definitions of the vocabulary words around the room. Have students search for the definitions and identify the vocabulary word that best matches the definition. The first student who finishes with the most correct answers wins.



It's All About the Kids!:

The West Rowan Alumni chapter was recognized at the National FFA Convention & Expo as the 2018 Outstanding Alumni Chapter. Read about what they do and why they do it.

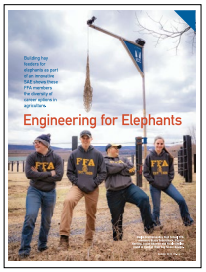
Appendix 1 – Giving Back



Help After the Hurricane:

In 2017, Puerto Rico was hit by two separate hurricanes that destroyed many parts of the island. Learn how communities came together and supported each other as they put their lives back together.

Appendix 2 – Preparing for the Worst



Engineering for Elephants:

Discover how a chapter designed and implemented a project to build hay feeders for the elephants at the local zoo.

Appendix 3 – Engineering and Agriculture



On the Record: Kip Tom:

Read this article to learn about the newest U.S. ambassador to the Food and Agriculture Organization, Kip Tom, as he discusses how FFA taught him many life lessons.

Appendix 4 – Future



Convincing Cotton Cynics:

Find out how an FFA member proved naysayers wrong by successfully growing cotton in northern Missouri.

Appendix 5: Convincing Cotton Cynics



Talking Points: Food Waste:

Read these talking points to learn key facts about the growing food-waste issue.

Appendix 6 – Talking Points — Food Waste



ARTICLE SUMMARY

It's All About the Kids!

The West Rowan Alumni chapter was recognized at the National FFA Convention & Expo as the 2018 Outstanding Alumni Chapter. Read about what they do and why they do it.

BELL RINGER:

What is an alumnus?

DISCUSSION QUESTIONS

1. What is an alumnus?
2. What role do alumni play in a chapter and community?
3. How can you become an alumnus?

ACTIVITY

Students should first complete the bell ringer activity on their own paper. Once all students have written an answer, have them discuss and explain their answers with their neighbors. After five minutes, call on a few students to share their answers.

Next, hand out the worksheet "Appendix 1: Giving Back," and have students read the article "It's All About the Kids!" Once they have completed the article, have students apply what they read by answering this question: Based on what you read, what is an alumnus? Have a short discussion to verify students inferred the correct definition. After the discussion, allow students to move through the worksheet at their own pace, applying what they read in the article to what they have experienced. To finish the worksheet, students will write a short thank you letter to an alumnus who has impacted them personally or who has impacted the school. Have students share these letters with those alumni members. (The letters can be anonymous if need be).

FFA TIP

Host an FFA alumni event to allow students to meet and thank FFA alumni members in their area. If you do not have an alumni chapter, look into developing one.

SAE TIP

Here is a short list of ways alumni members can help your members with supervised agricultural experience (SAE) programs.

- Fund SAE start up or expansion grants to members
- Help create or run a school-based SAE
- Serve as an approval board for service-based SAE proposals
- Hire members at their businesses
- Mentor members in the planning phase of an SAE and/or throughout an SAE

VOCABULARY

Alumni
Garnered
Recruitment
Supporters

EXIT TICKET

Why are active alumni so crucial to schools and programs?

CAREER FOCUS AREA

Any

RELATABLE WEBSITE

FFA Alumni and Supporters:
FFA.org/alumni-and-supporters

APPENDICES

Appendix 1: Giving Back

STANDARDS ALIGNMENT

• **FFA Precepts:** FFA.PL-A., FFA.PL-E., FFA.PG-J., FFA.CS-N. • **Common Core - Reading: Information Text:** CCSS.ELA.RI.9-10.2, CCSS.ELA.RI.9-10.4 • **Common Core - Literacy in Science & Technical Subjects: Writing:** CCSS.ELA.WHST.9.10.4 • **AFNR Career Ready Practices:** CRP.02, CRP.04 • **P21 Skills:** COMMUNICATION, INITIATIVE AND SELF-DIRECTION, LEADERSHIP AND RESPONSIBILITY, THINK CREATIVELY



GATHERING FOR GOOD



FOR THIS AWARD–WINNING ALUMNI AND SUPPORTERS CHAPTER, KEEPING SIGHT OF THE FFA MEMBERS IT SERVES IS WHAT IT'S ALL ABOUT.

STORY BY JAMI STALL · PHOTOGRAPHY BY TYLER SMITH

Jason Chester can talk at length about the virtues of what he considers "the coolest job in the world." The North Carolina agricultural education teacher offers enthusiastic praise for FFA. As the West Rowan FFA advisor and a member of the West Rowan FFA Alumni Council, he knows plenty of pointers for putting together an alumni and supporters chapter that succeeds year after year.

Consider these activities his alumni and supporters chapter conducts.

- **It hosts an annual FFA Chapter and Alumni Barn Dance that brings the community together for an evening of song and dance (and alumni recruitment).**
- **Each year, members of this farming community are invited to John Deere Day, where they socialize and receive free training on equipment operation and safety, new technologies, new planting and harvesting techniques, and to meet area agronomists.**
- **An annual Alumni Tailgate attracts nearly 150 community members to a hopped-up Friday night of hamburgers, hot dogs and family fun prior to a big rivalry high school football game.**
- **The alumni and supporters chapter's largest fundraiser of the year, the spring Oyster Roast, draws between 200 and 300 attendees the first Saturday of each March. Tickets cost $60 per person, and they're sold almost as quick as they're printed.**

BUT WAIT, THERE'S MORE!

The alumni and supporters also show their community support by working an FFA booth at the county fair each summer where they sell ice cream and roasted corn; tending a community garden to grow produce that is donated to the local food bank; and organizing an Agriculture Day for area second-grade students, where they teach about agriculture through hands-on ag activities. Students leave with a small gift and a vegetable plant.

Their hard work and innovation haven't gone unnoticed.

At the National FFA Convention & Expo last fall, the West Rowan FFA Alumni Chapter was named the 2018 National Outstanding FFA Alumni and Supporters Chapter. The same group has garnered top honors two other times since Chester

"THE GOAL IS NEVER AN AWARD," SAYS WILHELM. "THE GOAL IS ALWAYS THE KIDS IN THE PROGRAM."

helped recharter their chapter almost 15 years ago. He humbly credits coworkers, community supporters and a slew of others for winning those achievements, although many members attribute the continued success to his tireless efforts.

"He took something small and blew it up drastically to what it is today," says West Rowan Alumni Council president Garin Kluttz. "I watched it happen. When I came into high school, it was Jason Chester's first year here. He inspired me to get involved. Really, all the ag teachers here go above and beyond to always jump in and help."

Participating in FFA since his teens at South Rowan High School, which is about 10 miles away, Chester holds great respect for the organization. With a 2-year-old and a 1-month-old in tow, fatherhood frames his perspective and makes him even more committed to maintaining a thriving alumni council to help serve the student chapter.

"FFA is not the most important thing in my life, but obviously it is a huge part of my life," he says.

His wife, Brittany, a West Rowan FFA Alumni and Supporters member and former state officer, understands his commitment deeply. She often joins him at FFA events.

"All of us involve our spouses in our program. That's probably the real secret," Chester says. "Our spouses get involved in the activities, and they each have FFA backgrounds from all different chapters. So that brings a broad combination of experience to our program."





Above: West Rowan FFA members Amber White, Ethan Adkins (middle) and Aaron Russell (right) assist at the spring Oyster Roast. Below: Ben Starnes pours oysters.

COLLABORATION IS KEY

"Something else that separates us from some of the other alumni chapters around the states is how well our alumni council and FFA advisors work together to make plans of support," he adds.

The West Rowan FFA Alumni Chapter includes 120 lifetime members and nearly 90 annual members. While some share a blue jacket background, the nontraditional FFA supporters don't. They might possess experience in agriculture or simply an interest in helping the youth and community.

"I got started in the alumni council when my daughter, Madeline, was in the West Rowan FFA for two years in high school," says Tony Wilhelm, a corporate information technology director and nontraditional council member. "Jason asked me to serve on the alumni council, and I haven't been able to get out of it since," he says with a laugh. Madeline is now an agricultural education major at North Carolina State University.

Wilhelm says being situated in the middle of farm country makes recruitment efforts easier than it might be for other alumni and supporters chapters. "But you have to show them this is not just farmwork; this is an organization that grows leaders. It's worthwhile to invest your time and efforts into these kids because they're going to be your leaders in 10 years."

Kluttz became a lifetime member as soon as he graduated from high school in 2009. He's now a beef cattle and grain farmer, and he works in the ag-equipment trucking industry, as well.

"I don't really have time, but I make time because I care a lot about agriculture," Kluttz says. "Like with farming, it's not easy working long after the sun goes down and starting before the sun comes up, but if it means something to you, you'll make time for it. I help all that I can with the alumni council."

KEEP AN EYE ON THE PRIZE

So what's next for the West Rowan FFA Alumni Chapter and can it maintain its winning momentum?

"The goal is never an award," says Wilhelm. "The goal is always the kids in the program. Everything



we do is about them. If it doesn't benefit the kids in the program, it's not worth doing. We'll keep focused on what our goals are and continue to go after them like we always have. My advice to other alumni chapters: Don't lose sight of the kids."

Competitions and accomplishments represent a tiny spotlight in time, Wilhelm says. "It's a brief moment to shine. The next year, no one is talking about the competition winners from the last year or three years ago. What is noticed, though, are the soft skills that the students learned during their preparation for those events. They are noticed by teachers, professors, parents and employers. They notice the confidence and dedication. They notice the public speaking skills and ability to work as a team," he adds. "As FFA alumni and supporters, we're helping to prepare them for the next competition, as well as becoming the next farmer, teacher, business manager, PTA president, little league coach and FFA alumni council member. The time and effort we give them now multiplies itself later." •

Top: Members Taylor Walton, MacKenna Clifton and Rebekah Russell serve at the spring Oyster Roast. Below, left: Alumni council member Tony Wilhelm with West Rowan FFA Chapter vice president Ryley Corriher. Below, center and right: Oyster Roast attendees bid on auction items.

Awesome Alumni

Want to develop a strong alumni and supporters chapter? Consider these tips from the West Rowan FFA Alumni Council.

Give alumni and supporters members something to work for or a problem to solve right away. Let them know they have a purpose and they're needed.

Keep events and activities audience-centered. If it's a family event, make sure there's something for all ages to enjoy, from family-friendly games and entertainment to food and music.

Show the community you appreciate its support by hosting occasional events that are not fundraisers. Organize get-togethers for the sake of fellowship and fun without asking for money.

Plan and announce your chapter's events well in advance, which requires solid organizational skills. Don't expect good event turnout if you don't give people plenty of notice.

Be visible in your community so your FFA program remains top of mind. Give them something good to talk about.

Step back and allow alumni and supporters members to spread their wings, but be available when needed.

Additional Alumni and Supporters Awards

Several other alumni and supporters received awards at the 2018 National FFA Convention & Expo. Let's congratulate them!

Outstanding Achievement Award Recipients

Ed Beeler, Ohio: Beeler has supported FFA as a lifetime alumni member of the Talawanda FFA Chapter for more than 40 years.

John H. Arneson, Wisconsin: Arneson taught agriculture in the early 1980s at Rio High School and has been a life member of the Stoughton FFA Alumni Chapter since its formation.

Greg Lincicum, Wisconsin: Lincicum has volunteered countless hours for the Juda FFA Alumni Chapter, serving terms as secretary, president and as a member of the Wisconsin agricultural education department board of directors.

Outstanding Collegiate FFA Alumni and Supporters Chapter

Gator Collegiate FFA Alumni Chapter in Florida

Largest FFA Alumni and Supporters Chapter

Alpha Gamma Rho Fraternity with 49,459 members

Largest FFA Alumni and Supporters State Association

Missouri with 64,128 members







NAME: _____

Aligned to the following standards:
FFA.PL-A; FFA.PL-E; FFA.PG-J; FFA.CS-N; CCSS.ELA.RI.9-10.2; CCSS.ELA.RI.9-10.4; CCSS.ELA.WHST.9.10.4; CRP.02; CRP.04

Appendix 1: Giving Back

Created: Summer 2019 by the National FFA Organization

DIRECTIONS:

Read "It's All About the Kids" in the Summer 2019 issue of *FFA New Horizons*, and complete the following activities.



Based on what you read, what is an alumni member or alumnus?

Based on the reading, what are three reasons why someone might want to become an FFA alumnus?

1. _____

2. _____

3. _____

Identify two groups (ex. football team, high school, college, etc.) you will/could become an alumnus of one day.

1. _____

2. _____

Draw a picture of what it means to become an alumnus and the responsibilities an alumnus may be tasked with.

Once you are an alumnus, what special skills or talents can you provide to help your local school or FFA chapter?

NAME: _____

List three helpful acts you have witnessed alumni or parent helpers do at your school.

1. _____
   _____
2. _____
   _____
3. _____
   _____



What impact have these acts had on your school?

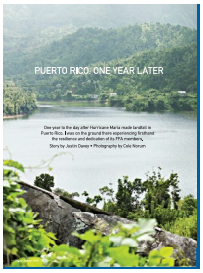
Write a thank you letter to one of the alumni who has had an impact on your school, your organization or you. Include how you hope to have an impact in the future due to his or her help.

To: _____

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Sincerely,

NEW HORIZONS
SUMMER 2019 TEACHING GUIDE



ARTICLE SUMMARY

Help After the Hurricane

In 2017, Puerto Rico was hit by two separate hurricanes that destroyed many parts of the island. Learn how communities came together and supported each other as they put their lives back together.

BELL RINGER:

Hand out the worksheet "Appendix 2: Preparing for the Worst." Vividly describe the following scenario so students can picture it. Imagine this: No electricity. No water. Demolished houses. Steep mountain roads made impassable by mud and vegetation. Rations at the grocery store to ensure there is enough food to go around. Limited medical supplies at the hospital. A lack of gasoline, even for first responders, and long lines of cars waiting for the next tanker. Helicopters flying overhead, dropping supplies for stranded communities.

Have students reflect on the scenario and then respond on the worksheet "Preparing for the Worst."

DISCUSSION QUESTIONS

1. What is a natural disaster?
2. What can be done after a natural disaster occurs?
3. What natural disasters are likely to happen in our area?

ACTIVITY

Have students read the article "Help After the Hurricane" and then complete the worksheet. The worksheet has three parts: (1) students will review each of the FEMA information sheets linked on the worksheet and answer the associated questions, (2) students will match descriptions and impacts of natural disasters with the correct natural disaster, and (3) students will select one of the natural disasters that could occur in their state and develop an infographic to help other students prepare for a natural disaster, know how to act during a disaster and understand what happens after a natural disaster. Hang these infographics around the room or in the hallway to help others learn about what they need to do.

FFA TIP

Invite a community member (ex. local firefighter) to discuss natural disasters and how to prepare for them.

SAE TIP

Find out more about service learning SAEs and discover how your students can learn and grow even more while serving their community.

VOCABULARY

Demolish
FEMA
Natural disaster
Postapocalyptic
Ration
Refugee

EXIT TICKET

What can you do to prepare for a natural disaster in your area?

CAREER FOCUS AREAS

Environmental Service Systems
Natural Resources Systems

RELATABLE WEBSITES

FEMA: https://www.fema.gov
USA.gov: https://www.usa.gov/after-disaster

APPENDICES

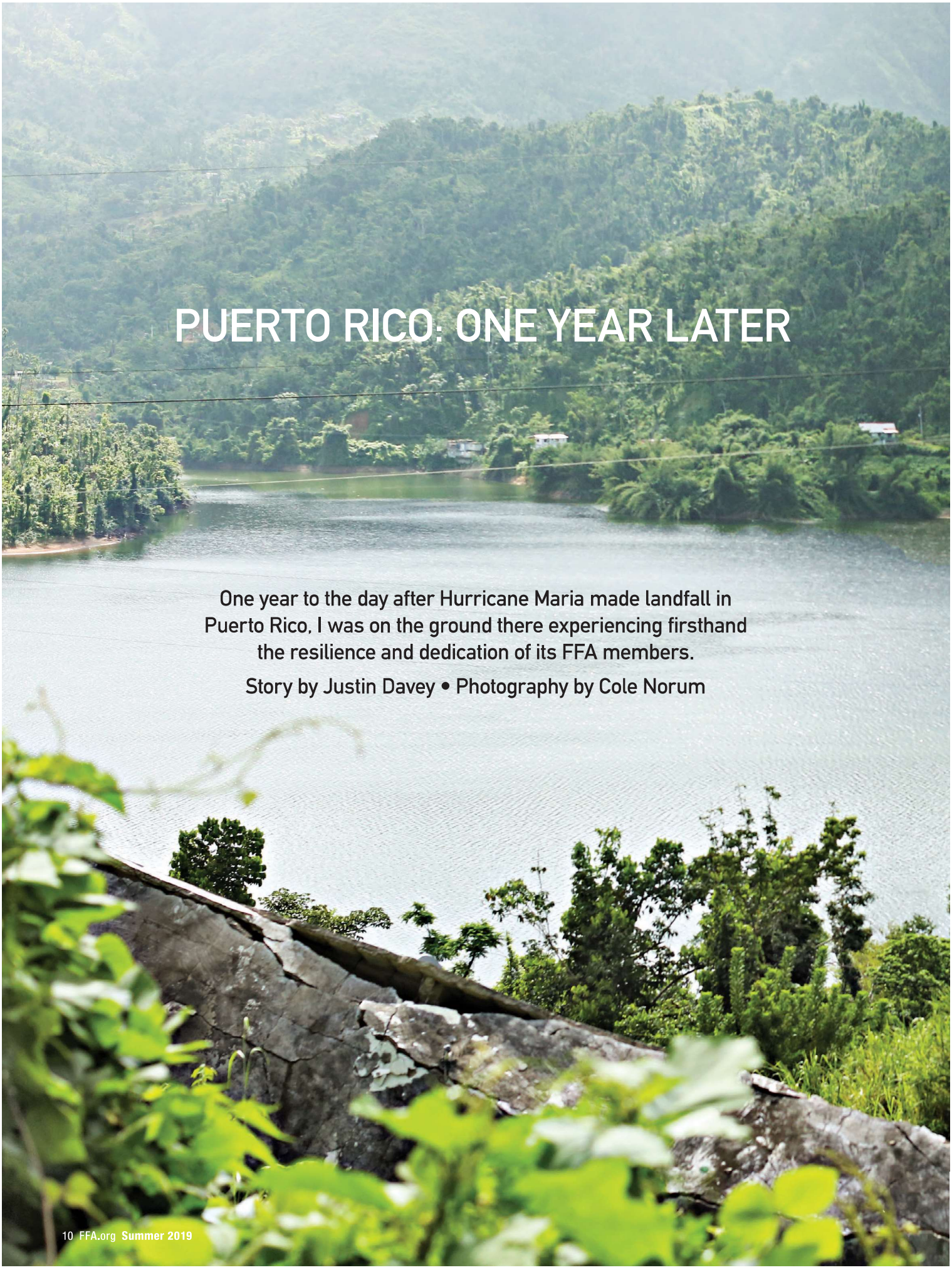
Appendix 2: Preparing for the Worst

REFERENCES

FEMA, https://www.fema.gov
USA.gov, https://www.usa.gov/after-disaster

STANDARDS ALIGNMENT

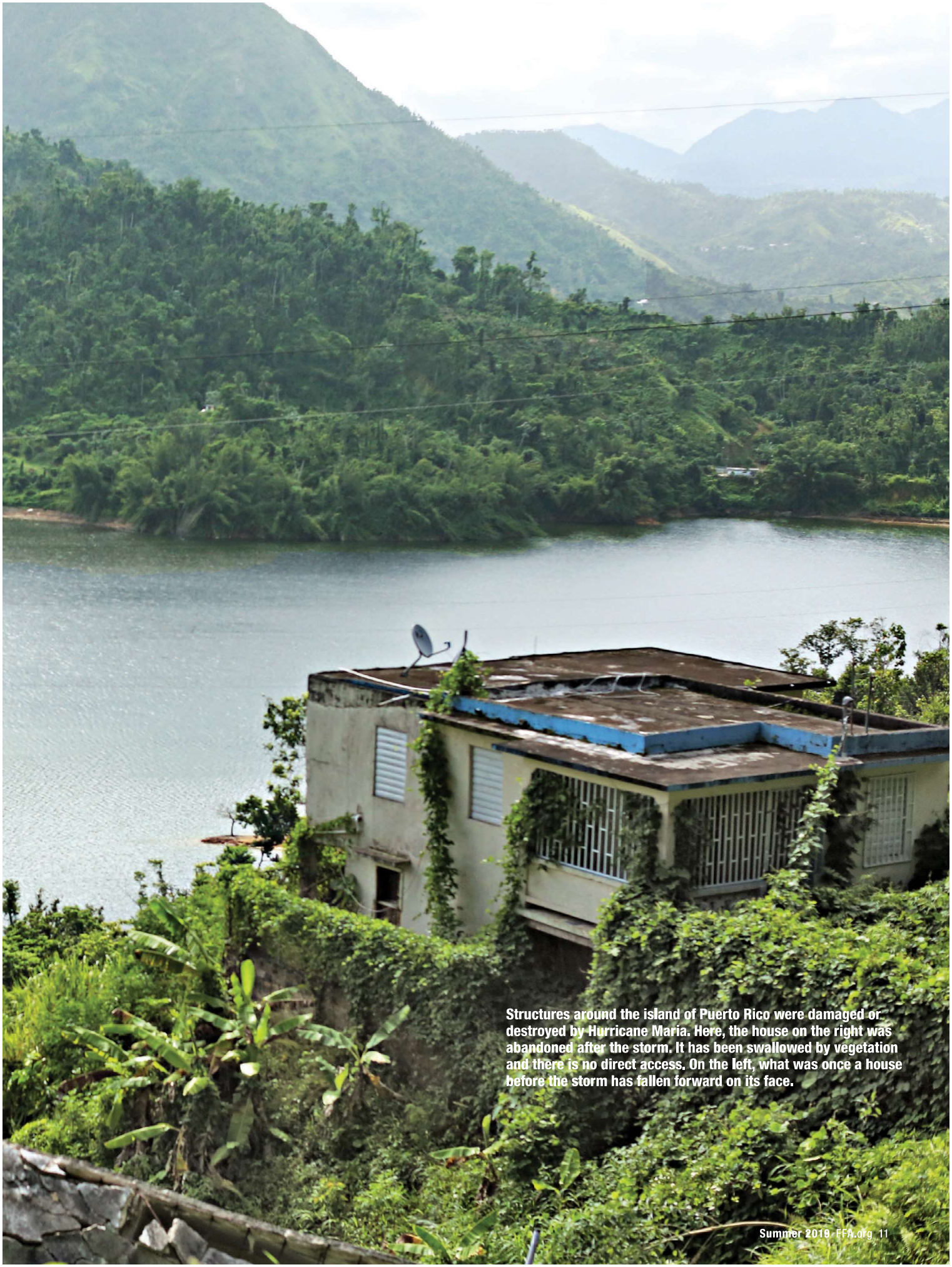
• **FFA Precept:** FFA.PL-A., FFA.PG-J, FFA.CS-N • **Common Core-Reading: Informational Text:** CCSS.ELA.RI.9-10.4 • **Common Core-Math Practices:** MP5, MP6 • **AFNR Career Ready Practices:** CRP.04, CRP.06 • **P21 Skills:** COMMUNICATION, INITIATIVE AND SELF-DIRECTION, LEADERSHIP AND RESONSIBILITY, THINK CREATIVELY



PUERTO RICO: ONE YEAR LATER

One year to the day after Hurricane Maria made landfall in Puerto Rico, I was on the ground there experiencing firsthand the resilience and dedication of its FFA members.

Story by Justin Davey • Photography by Cole Norum



Structures around the island of Puerto Rico were damaged or destroyed by Hurricane Maria. Here, the house on the right was abandoned after the storm. It has been swallowed by vegetation and there is no direct access. On the left, what was once a house before the storm has fallen forward on its face.











Clockwise from top left: SU Antonio Tulla Torres FFA advisor Juan Maury with Puerto Rico FFA Association 2018-19 president Yomar Roman. One year after Hurricane Maria, a crew clears debris from a mountain road. The aftermath of Hurricane Maria. Jose Emilio Lugo High School FFA advisor Nydia Nunez. SU Antonio Tulla Torres FFA members.

Imagine this: No electricity. No water. Demolished houses.

Steep mountain roads made impassable by mud and vegetation. Rations at the grocery store to ensure there's enough food to go around. Limited medical supplies at the hospital. A lack of gasoline, even for first responders, and long lines of cars waiting for the next tanker. Helicopters flying overhead, dropping supplies for stranded communities.

While that dire situation may sound like a postapocalyptic movie, unfortunately, it's far from fiction. These terrible events – and more – actually took place. In September 2017, Hurricane Maria ripped across the island of Puerto Rico and caused catastrophic damage and numerous fatalities. It was regarded as the worst natural disaster on record in Puerto Rico, and residents of the island were still recovering from Hurricane Irma, which struck two weeks earlier. Approximately 80,000 people remained without power as Maria approached, and that storm went on to completely destroy the island's power grid leaving millions of residents without electricity.

As I toured Puerto Rico and met with local FFA members in September 2018, the impact of the storm was still evident. Blue tarps provided by the Federal Emergency Management Agency (FEMA) were still widely used as roofs. Heavy machinery still cleared debris from mountain roads.

As a territory of the United States, the U.S. government provided recovery and relief efforts in Puerto Rico. Reports of response time and levels are varied, and some residents in rural areas went months without government aid. Whether out of necessity or a drive that lives inside them (or probably both), many people didn't wait for outside assistance to start rebuilding their lives. FFA members and advisors in Puerto Rico joined with their communities to clean up their homes, their neighbors' homes, their roads and their schools. In a phrase, they lived to serve.

A Common Scene

Puerto Rico is home to 2,650 FFA members and 150 chapters, including Jose Emilio Lugo High School FFA in Adjuntas (about two hours southwest of San Juan, the capital). The Adjuntas community braced as the storm approached. "It was very nerve-racking because we're 16, 17, 18 years old and we'd never experienced anything like that," says chapter president Genesis Perez. "We didn't know what was going to happen to our families, our friends and our community."

"A week before, we had Hurricane Irma," adds Caleb Velez, chapter vice president. "We didn't expect another storm so soon, so we weren't prepared. It came as a surprise."

Some students saw their worst fears unfold.

Member Fremiud Otero's home was lost in the storm. "We were home when the storm came," he says. "Water came through the roof, so we needed to move outside. A neighbor rescued us, and we stayed in her house for the night. After the hurricane, we went to my grandparents' house, which is close by, and we stayed there for seven months. We're now living on the first floor of our house again, which was reconstructed, and we're in the process of fixing the rest of the house."

Chapter secretary Gabriela Gonzalez's home was also dam-

Some students saw their worst fears unfold.

aged. "A 300-year-old tree behind our house fell on our roof," she says. "We had to move because the house wasn't safe." At the time of my visit, her family still wasn't living in their home, but they have since returned.

Adding to the emotion and disruption of being without a house, the school was closed for three months after Hurricane Maria for repairs and to house refugees. But FFA members didn't sit idle.

"Most of the damage was around the school grounds and not to the school building in particular," says Nydia Nunez, the agriculture instructor and FFA advisor at Jose Emilio Lugo High School. "The students really came together. They made teams to help in the community. Even the students who lost houses and family members came together to help the community."



The school greenhouse, which sits on the perimeter of the school grounds and is used by agriculture students, was completely demolished. The metal structure was damaged and some pieces blew away. In typical FFA fashion, the students pitched in and rebuilt it. "We worked very hard to put it back how it was. It's now a little lower than it was, but it's very functional," Gonzalez says with pride.

"We also donated clothes, food, water, medical supplies and basic sanitary items to surrounding communities," Perez adds.

Like Angels

At SU Antonio Tulla Torres school in Utuado (about an hour and a half southwest of San Juan), agriculture instructor and FFA advisor Juan Maury describes a similar scene.

"We have an 8-acre farm at the school with a small coffee plantation, plantains and vegetable gardens," he says. "Trees were uprooted, and the farm had 100 percent destruction.

"There were people, like angels, who came to help us clean up the school farm," he continues. "Community members, other teachers from our school and other FFA chapters came. The spirit of FFA is alive here. It equips those of us who want to know how to help ourselves and others. I saw that in action with the chapters that came to help. They'd ask, 'What are we doing today?' and then get to work."

Watch our video

Point your phone's camera at this icon to get more member stories from Puerto Rico. You don't even have to snap a photo — just hover!

SU Antonio Tulla Torres also canceled classes for three months while the facility was repaired and served as a distribution center of supplies for community members.

"Ultimately, the students had good attitudes," he says. "They wanted to know what they could do to help the community, their families, the school and our farm. The way they responded proved to me what's in their hearts and the kind of FFA members they are. This has been the hardest thing in their lives – and mine, too. It's important for them to know what they are and what they can accomplish. I tell them that every day."





Clockwise from top: The school farm at SU Antonio Tulla Torres school after cleanup. Jose Emilio Lugo High School FFA members in the rebuilt greenhouse. SU Antonio Tulla Torres FFA members.

Progress in Puerto Rico

Today, the people of Puerto Rico continue to rebuild. "Our communities are getting stronger, and we continue to help each other," Nunez says. "That's the only way we got through this, by helping each other, and we will carry on."

After the hurricane, Jose Emilio Lugo FFA members were inspired to continue to turn their experiences into something productive. "We were more motivated than ever to participate in FFA," says Gonzalez. "The experience motivated me to participate in an English Prepared Public Speaking leadership development event for FFA," says Velez. "It's about what happened, what we can learn from it and what we can do to make this island better. It's our responsibility to make it stronger, so we're prepared when an experience like this comes."

Consider this excerpt from Velez's speech, which embodies the humble, expectant, eager and even grateful spirit the people of Puerto Rico maintain:

"Hurricane Maria gave today's generation the opportunity to see what life is like without the facilities we have, with the setbacks of our parents and grandparents. That allows us to understand where we come from, appreciate what we have and work to improve for the future." •

Aligned to the following standards:
FFA.PL-A; FFA.PG-J; FFA.CS-N; CCSS.ELA.RI.9-10.4; MP5; MP6; CRP.02; CRP.04; CRP.06

NAME: _____

Appendix 2: Preparing for the Worst

Created: Summer 2019 by the National FFA Organization

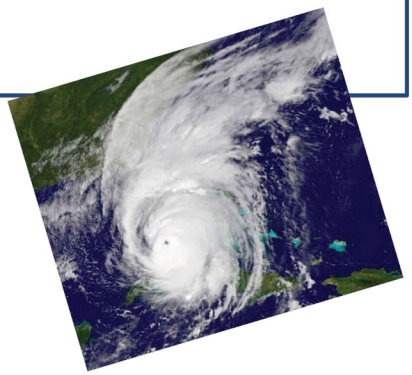
DIRECTIONS:

Read the scenario and answer the questions below.

Imagine this:

No electricity. No water. Demolished houses. Steep mountain roads made impassable by mud and vegetation. Rations at the grocery store to ensure there is enough food to go around. Limited medical supplies at the hospital. A lack of gasoline, even for first responders, and long lines of cars waiting for the next tanker. Helicopters flying overhead, dropping supplies for stranded communities.

How does this situation make you feel? What would you do?



DIRECTIONS:

Read the article "Help After the Hurricane" in the Summer 2019 issue of *FFA New Horizons.* Disaster can strike when we least expect it. However, understanding how we can prepare and knowing where and how to get help, if needed, can enable us to feel more confident when poor weather is predicted or hits close to home.

(1) Review each of the natural disasters listed below and then complete the matching activity using this information.

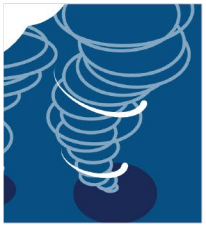
- Earthquake
- Flood
- Landslide
- Tornado
- Wildfire



What impact do natural disasters have on agriculture? Give 2 specific examples.

What would you and your family do if a natural disaster hit your community?

NAME: _____



A.



B.



C.



D.



E.

1. _____ Which natural disaster requires you to stay in bed if that is where you are when it begins?
2. _____ Which natural disaster is often caused by humans?
3. _____ Which natural disaster can be caused or intensified with little to no rain and high winds?
4. _____ Which natural disaster can cause a tsunami, landslide or avalanche?
5. _____ The best place to be is in a basement, cellar or windowless centralized room.
6. _____ Moving to higher ground may be your best option during this natural disaster.
7. _____ This natural disaster can be caused by flooding.
8. _____ "Drop, cover and hold on" is what you should do immediately.
9. _____ This is when rocks and other debris move down a slope.
10. _____ This has rotating columns of air that can touch the ground.

CALL OUT!
Did you know National FFA offers grants that could help with relief efforts for natural disasters? Learn more at FFA.org/livingtoserve/.

(2) Select one of the natural disasters most likely to occur in your state. The Federal Emergency Management Agency (FEMA) works to educate the public and respond when disasters occur. However, some people do not understand the preparation needed, the correct actions to take and the protocol after a natural disaster. Using blank paper, create your own infographic to educate others in your school.

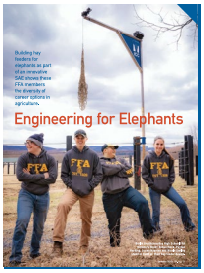
a. Select one natural disaster.
b. Look at the resources offered by FEMA (https://www.fema.gov/) and USA.gov (https://www.usa.gov/after-disaster).
c. Create an infographic that will resonate with your peers.
d. Note: If you would like to create your infographic digitally, resources like Piktochart are available online but require login information.

INFOGRAPHIC RUBRIC

Criteria	Below Average (0–1 points)	Average (2–3 points)	Above Average (4–5 points)
Knowledge	Work shows little to no understanding of the topic.	Work shows some understanding of the topic.	Work shows excellent understanding of the topic.
Quality	Work is very low quality with little evidence of effort.	Work shows some effort and is mostly neat.	Work shows excellent effort and is of high quality.
Instructions	Student did not follow instructions for the task.	Student followed some of the instructions.	Student followed all instructions for the task.
Timeliness	Work was submitted **more** than **one day** late.	Work was **one day** late.	Work was submitted on time.
Audience	Developed for adults or younger children	_____	Developed for peers
		Total	

NEW HORIZONS

SUMMER 2019 TEACHING GUIDE



ARTICLE SUMMARY

Engineering for Elephants

Discover how a chapter designed and implemented a project to build hay feeders for the elephants at the local zoo.

BELL RINGER:

How can the fields of animal science and agricultural mechanics work together?

DISCUSSION QUESTIONS

1. What is animal behavior?
2. What is the function of a welding joint?
3. How do animal science and agricultural mechanics work together?

ACTIVITY

This activity is broken up into three parts. Part one is an animal science lesson, part two is an agricultural mechanics lesson and part three will combine the lessons.

Part 1: Students should begin by answering the first three questions on the "Appendix 3: Engineering and Agriculture" worksheet. Once all students have completed this activity, discuss the answers. Next, students will read the article "Engineering Elephants" in the Summer 2019 issue of FFA New Horizons. Have students visit the SeaWorld Parks and Entertainment website, seaworld.org/animals/all-about/training/animal-behavior-and-learning, and answer the questions about behavior in animals. Next, have students explore different behaviors. Using the website sciencing.com/innate-learned-animal-behavior-6668264.html, students should define each of the different types of animal behavior and then draw a picture that represents that type of behavior, examples should NOT be from the website. Students should think about the animals they own/come into contact with every day (ex. rabbits, cats, sheep, etc.). Lastly, using the Hill's Science Diet website, have students identify why the dog is exhibiting that behavior and a corrective action that can be taken. Have students select an animal (other than a dog) and identify 5 behaviors. Thinking about the behavior, what is a corrective action (for negative behaviors) or reinforcement (for good behaviors) that can be taken to address each behavior?

Part 2: Students will walk through some of the most common welding joints used in the industry, which would have been used to create the elephant feeder. Using the website theweldingmaster.com/types-welding-joints, students will learn about each of the different types of welding joints and the variations in each weld. Next, they will create the weld using graham crackers and icing. Students should draw or take a picture and place it next to each weld listed in the worksheet. If you are not performing this lab, have students draw a picture of each joint weld. At completion, they will consider the impact of the welding industry on the economy and the courses/training needed to become a welder.

Part 3: In pairs, students will combine the animal science knowledge and welding knowledge they have gained to solve a problem. Students will draw the solution, label, and describe the parts of their plan. Have groups present their ideas to the class when all groups have finished.

FFA TIP

Have students compete in the agricultural mechanics CDE or veterinary science CDE to demonstrate their knowledge.

SAE TIP

Work with government agencies, businesses and other organizations to find local problems your students can solve, individually or in groups, as a part of their SAE programs. Be sure to have your alumni members assist with contacting local groups.

Some problems students could solve include the following:

- Soil erosion or water issues in parks and landscaped areas.
- Animal handling or waste management systems for animal shelters.
- Wildlife surveys, habitat improvement or nuisance animal issues.

VOCABULARY

Engineering
Ethology
Innate behavior
Learned behavior
Welding

EXIT TICKET

How can animal science and agricultural mechanics work together to solve a real world problem?

CAREER FOCUS AREAS

Animal Systems
Power, Structural and Technical System

RESOURCE HIGHLIGHT

Visit AgExplorer.com to learn about career opportunities in the animal systems and power, structural and technical systems career focus areas.

REFERENCES

Hill's Science Diet website, https://www.hillspet.com/dog-care/behavior-appearance/types-of-common-dog-behavior
Sciencing, https://sciencing.com/innate-learned-animal-behavior-6668264.htm
SeaWorld Parks & Entertainment, https://seaworld.org/animals/all-about/training/animal-behavior-and-learning
The Welding Master, http://www.theweldingmaster.com/types-welding-joints

APPENDICES

Appendix 3 - Engineering and Agriculture

STANDARDS ALIGNMENT

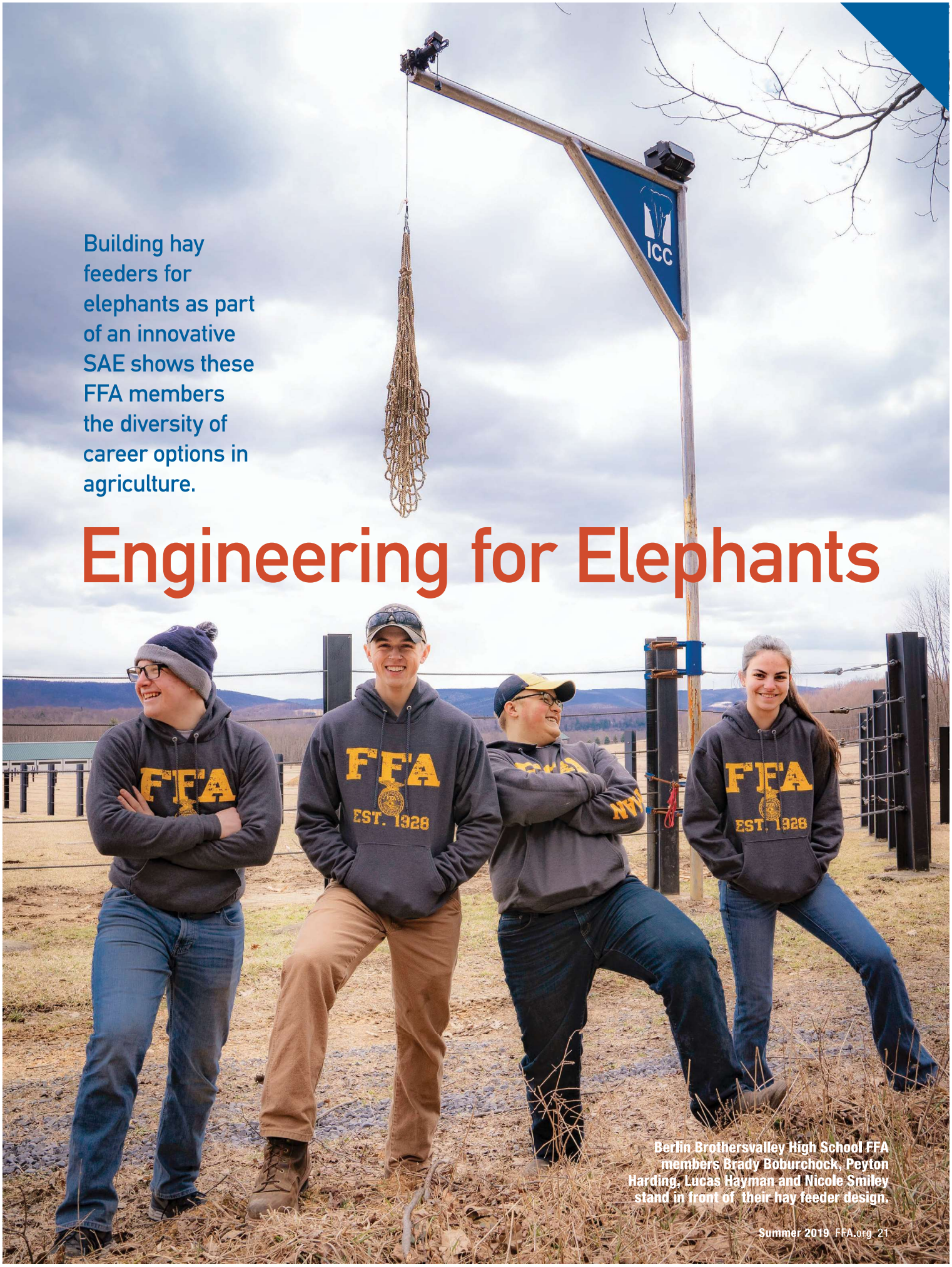
• AFNR Performance Element: CS.02 **• NASDCTEc-State Directors (Career Clusters):** AGPC01.02 **• FFA Precepts:** FFA.PL-A, FFA.PL-E, FFA.PL-F, FFA.PG-I, FFA.PG-J, FFA.CS-M, FFA.CS-N **• Common Career Technical Core:** AG2 **• Common Core - Reading: Informational Text:** CCSS.ELA.RI.9-10.4 **• Common Core-Math Practices:** MP5, MP6 **• AFNR Career Ready Practices:** CRP.02, CRP.04, CRP.06, CRP.07, CRP.08 **• P21 Skills:** COMMUNICATION, CRITICAL THINKING AND PROBLEM SOLVING, INITIATIVE AND SELF-DIRECTION, LEADERSHIP AND RESPONSIBILITY, THINK CREATIVELY



Story by Jodi Helmer
Photography by Jeff Noble

Building hay feeders for elephants as part of an innovative SAE shows these FFA members the diversity of career options in agriculture.

Engineering for Elephants



Berlin Brothersvalley High School FFA members Brady Boburchock, Peyton Harding, Lucas Hayman and Nicole Smiley stand in front of their hay feeder design.



Left: Members Nicole Smiley, Aspen Hay, Peyton Harding and Brady Boburchock. Opposite, top: International Conservation Center senior elephant keeper Thomas Bakke. Opposite, bottom: Advisor Dan Miller and students fabricate elephant feeders.

When Peyton Harding learned that his welding class at Berlin Brothersvalley High School was going to be designing a hay feeder for the elephants at the International Conservation Center (ICC) in Somerset, Penn., he was skeptical.

"An elephant isn't an animal people are around much; it's not like we walk out into the field to feed one in the morning like a cow or a horse," Harding says. "I had no idea how we were going to make something that would hold up to such big animals, but it sounded like it would be a cool project."

Senior elephant keeper Thomas Bakke was leading a tour at ICC for several school board members and teachers when he overheard FFA advisor Dan Miller talking about the high school welding class. It sparked a conversation about opportunities to work together for the benefit of the elephants and the students.

ICC is part of the Pittsburgh Zoo and PPG Aquarium, and it's considered a premier conservation, education, breeding and training facility that specializes in the care of African elephants.

Hay is the primary diet for the five elephants living at ICC. The herd consumes an estimated 6,000 bales every year; most of the hay is grown onsite. Bakke and the other elephant keepers used to toss hay on the ground, but he admits the setup wasn't ideal.

"If we put out a quarter bale of hay, it's going to be gone in 15 minutes," Bakke explains. "If we suspend the hay in a net that hangs 20-plus feet off of the ground, it's going to quadruple the time it takes for them to eat it. Elephants are smart. Their gears are always turning, so we want to keep them busy."

Enrichment is great for animals, including elephants. It encourages them to think, discover and determine what to do. The hay feeders provide that opportunity by providing a form of mental stimulation.

ENGINEERING ENRICHMENT

Members of the Berlin Brothersvalley High School FFA Chapter were excited about the idea of building hanging hay feeders for the ravenous pachyderms, but they needed more information to get started. Bakke provided a tour of the elephant habitat at ICC, along with information about African elephants and their specific behaviors.

Bakke shared his vision for how the ideal hanging hay feeder would operate, explaining that the model had to be designed from a schedule 40 steel pipe, had to include a mechanism that could raise and lower the hay bag and had to have an arm that rotated 180 degrees so elephant keepers could fill it up without entering the enclosure.

Students came up with several prototypes, and the ICC selected the final design. The feeder stands 21 feet tall, and a bearing system allows keepers to fill

Continuing the Feeding Frenzy

The partnership between the International Conservation Center (ICC) and the Berlin Brothersvalley High School FFA Chapter in Pennsylvania did not end after the first hanging hay feeder was installed last spring. Armed with their knowledge of elephant behaviors and the importance of providing enrichment activities in the habitat, students started developing prototypes for additional feeders.

"The students built several scale models of different prototypes and presented them to ICC," FFA advisor Dan Miller explains. "We just had one approved, and the ninth-grade welding class has started working on building it."

The new feeders operate with a series of levers that elephants must push or pull with their trunks to release treats like sweet potatoes and apples. The treat dispensers will be used as tools to help handlers teach elephants commands.

"These are once-in-a-lifetime opportunities that aren't available in most other school districts," Miller says. "We're fortunate to have a partnership with ICC that shows students the diversity of agriculture." •

6,000

The estimated number of hay bales the herd consumes every year.



a hay bag hanging at the end of a 10-foot arm and swing it out into the enclosure, locking it in position. The feeder is bolted onto a 12-foot-tall I-beam that serves as the fence post.

Selecting materials that can withstand the demands of elephants that weigh up to 11,000 pounds was no small feat. Keeping costs in check was also a challenge.

A pair of brand-new metal bearings cost upwards of $36,000, sending students back to the drawing board for alternate solutions. Using bearings salvaged from the wheel assemblies of old cars — at a total cost of $39 — proved to be an affordable and durable alternative.

"It was so rewarding to watch these kids go through the thought process to make this feeder," Miller recalls.

Despite the challenges, Miller believes the FFA members had a lot of fun and learned that agriculture is not all about corn and cattle.

"It's not every day you get to work on a project with the Pittsburgh Zoo. Most supervised agricultural experience projects involve gardens or traditional beef or dairy farms," he says. "With this project, students got to experience other potential career paths in agriculture."

INNOVATION IN ACTION

The feeder was installed in May 2018. FFA members were invited to the ICC to help install the feeder and to see the elephants use it for the first time.

Harding says the experience was rewarding. "It was great to make something the elephants could use and to know that we were a part of making something that could help them."

While all of the elephants loved the new addition to their habitat, for one ICC resident, the innovative hanging hay feeder has been life-changing.

A 40-year-old elephant named Bette, the shy, geriatric female in the herd, loves her feeder and is often the first one out in the morning to eat. Bakke was thrilled.

"Just lifting hay off of the ground might not seem like much, but it significantly impacted their behavior," he says. "When we see positive changes like that, it shows that providing enrichment and altering their habitat and how we present their food are of critical importance to their health."



In fact, the feeder was such a hit that Bakke asked the Berlin Brothersvalley High School FFA Chapter to build more. Students are currently working on a second feeder and have made minor tweaks to the design, including a stronger pin to keep the feeder locked in place. The goal is to have six hanging hay feeders in the elephant habitat at ICC.

Bakke believes the project will have an impact that extends beyond the elephants living at ICC.

"The big thing about having elephants is that we're able to inspire the younger generation to care about them," he says. "In Africa right now, we're losing upwards of 100 African elephants per day due to the ivory trade and habitat loss, but we can't inspire people to care about elephants if they've never seen one. With this project, we were able to make our elephants' lives better but also, hopefully, to inspire the next generation to care for them." •

NAME: _____

Aligned to the following standards:
AGPC01.02; CS.02; FFA.PL-A; FFA.PL-E; FFA.PL-F; FFA.PG-I; FFA.PG-J; FFA.CS-M; FFA.CS-N; AG2; CCSS.ELA.RI.9-10.4; MP5; MP6; CRP.02; CRP.04; CRP.06; CRP.07; CRP.08

Appendix 3: Engineering and Agriculture



Created: Summer 2019 by the National FFA Organization

Part 1

DIRECTIONS:

Begin by answering the following questions:

How do you act when you are happy? Give two examples.

1. _____
2. _____



How do you act when you are sad? Give two examples.

1. _____
2. _____



How do you act when you are bored? Give two examples.

1. _____
2. _____



What do animals do when they are happy, sad and bored?

What makes humans and animals act this way?

DIRECTIONS:

Read the article "Engineering Elephants" in the Summer 2019 issue of *FFA New Horizons*. Complete the following activities once you have finished reading.

(1) Visit the SeaWorld Parks and Entertainment website, https://seaworld.org/animals/all-about/training/animal-behavior-and-learning/, and answer the following questions.

What is animal behavior?

What is a specific example of a behavior shown by a dog?



What is the scientific study of animal behavior called?

_____

What are the four basic reasons why animals behave the way they do?

1. _____ 2. _____ 3. _____ 4. _____

NAME: _____

(2) Now that we have a basic understanding of what behavior is, let's explore different behaviors. Using the website https://sciencing.com/innate-learned-animal-behavior-6668264.html, define each of the different types of animal behavior and draw a picture that represents that type of behavior. Your drawing must be an example **not** used on the website. Think about the animals you own, come into contact with every day or have seen in videos (ex. dogs, cats, sheep, rabbits, etc.) to complete this activity.

Innate Behavior		Learned Behavior
Definition:	Vs.	Definition:
Picture:		Picture:

(3) We now have an understanding of behaviors in animals. Let's look at behaviors that are exhibited and what they could mean.

a. Five dog behaviors are listed. Using the Hill's Science Diet website, identify why the dog is exhibiting that behavior and a corrective action that can be taken.

b. Select an animal (other than a dog). Identify 5 behaviors that animal exhibits. Thinking about the behavior, what is a corrective action (for negative behaviors) or reinforcement of the action (for good behaviors) that can be taken to address each behavior?

Dog Behaviors:	Your Selected Animal: _____
1. Biting a. Why? b. Corrective action:	1. _____ a. Why? b. Corrective action or reinforcement of action:
2. Yawning a. Why? b. Corrective action:	2. _____ a. Why? b. Corrective action or reinforcement of action:
3. Circling a. Why? b. Corrective action:	3. _____ a. Why? b. Corrective action or reinforcement of action:
4. Panting a. Why? b. Corrective action:	4. _____ a. Why? b. Corrective action or reinforcement of action:

In the article, they talk about how the elephants sway. Why did the elephants do this? How can the caretakers correct the behavior?



NAME: _____

Part 2

DIRECTIONS:

Within the article, students had to apply the skills they learned in their agricultural mechanics class. Now, we will walk through some of the most common welding joints used in the industry, which would have been used to create the elephant feeder. Using the website http://www.theweldingmaster.com/types-welding-joints/, examine each of the different types of welding joint and the variations in each weld. After you learn about each weld, you will create the weld using graham crackers and icing. Draw or take a picture and place it next to each weld below. If you are not performing this lab, draw a picture of each joint weld.

Butt Joint

Description:

Variations:

Example: Bevel groove weld

Picture:

Corner Joint

Description:

Variations:

Picture:

T Joint

Description:

Variations:

Picture:



NAME: _____

Lap Joint

Description:

Variations:

Picture:

Edge Joint

Description:

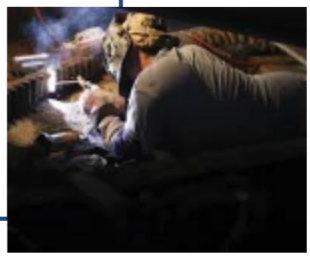
Variations:

Picture:



Find a weld that you have in your classroom! Describe it.

What role do welders play in our everyday lives? (Hint: Think about your day-to-day tasks).



What classes could you take to prepare for a career in welding?

NAME: _____

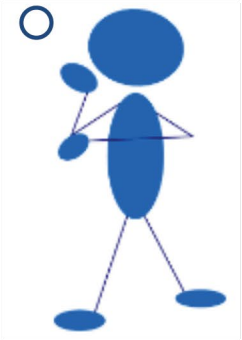
Part 3

DIRECTIONS:

You have now learned about animal behavior and welding. How do they fit together? Read the scenario below. Thinking about what you have learned, construct a solution to the problem.

Scenario:

Your friend has six rabbits of varying breeds. The rabbits are cared for daily. These rabbits are not only for meat purposes, but also serve as pets. The rabbits have been consistently hopping back and forth in front of the door to their enclosure and flipping their feed dishes. This behavior has caused sore hocks and a loss of feed.



(1) Identify the behaviors exhibited by the rabbits.

(2) Why do you think they are exhibiting these behaviors?

(3) Design a hutch (rabbit house) that will fix the issues your friend is having with the rabbits. Draw a picture of the hutch below. Be sure to label any welding joints that may be used and describe why your design will solve the problem.

Design	**Explanation**



ARTICLE SUMMARY

On Record: Kip Tom

Northern Indiana farmer, entrepreneur and former FFA Foundation trustee Kip Tom is the new U.S. ambassador to the Food and Agriculture Organization of the United Nations in Rome, Italy. Read this article to see how he credits FFA with teaching him many life lessons that he now uses on the world stage.

BELL RINGER:

What clubs, organizations, teams and groups are you a member of? What have you learned from being a member of those groups, and how has it helped you be the person you are today?

DISCUSSION QUESTIONS

1. What is the Food and Agriculture Organization?
2. What skills are needed to be an ambassador?

ACTIVITY

On their own paper, have students complete the bell ringer activity. Once all students have written an answer, have them discuss and explain their answers with their neighbors. After five minutes, call on a few students to share their answers.

Each student needs a copy of the "Appendix 4: Future" worksheet. Students should read the article "On the Record: Kip Tom." After reading the article, have students complete the worksheet. The worksheet is divided into three parts: (1) students will think about their future self and answer questions from that perspective, (2) students will answer questions pertaining to the article, and (3) students will research where U.S. ambassadors (embassies) are located around the world and, using the map on the worksheet, will color the countries in which the embassies are located.

Have students complete the exit ticket before leaving class.

FFA TIP

Invite local county or city officials to speak to your agriculture classes and FFA chapter about how the city or county government works and how the agriculture industry affects the local government and economy.

SAE TIP

Help your students list the real-world skills that can be learned through completing a supervised agricultural experience (SAE) program.

VOCABULARY

Entrepreneur
Trustee
Ambassador
Initiatives

EXIT TICKET

Just as Kip Tom gave advice to today's FFA members, what advice would you give to younger FFA members and students?

CAREER FOCUS AREAS

Any

REFERENCES

Discover Diplomacy, https://www.state.gov/discoverdiplomacy/explorer
Food and Agriculture Organization of the United Nations, http://www.fao.org/countryprofiles/index/en/?iso3=USA
What are the roles of a diplomat?, https://www.state.gov/discoverdiplomacy/diplomacy101/people/170341.htm

APPENDICES

Appendix 4 - Future

STANDARDS ALIGNMENT

• **FFA Precept:** FFA.PL-A, FFA.PL-C, FFA.PL-E, FFA.PG-J, FFA.CS-M, FFA.CS-N, FFA.CS-O • **Common Core-Reading: Information Text:** CCSS.ELA.RI.9.10.2, CCSS.ELA.RI.9-10.4 • **Common Core - Writing:** CCSS.ELA-LITERACY.W.9-10.2 • **Common Core - Speaking and Listening:** CCSS.ELA-LITERACY.SL.9-10.4, CCSS.ELA-LITERACY.W.9-10.4 • **Common Core – Literacy in Science & Technical Subjects: Writing:** CCSS.ELA-LITERACY.WHST.9.10.4 • **Common Core – Math Practices:** MP2, MP6 • **AFNR CAREER READY PRACTICES:** CRP.02, CRP.04 • **P21 SKILLS:** COMMUNICATION, CRITICAL THINKING AND PROBLEM SOLVING, GLOBAL AWARENESS, INITIATIVE AND SELF-DIRECTION, LEADERSHIP AND RESPONSIBILITY, THINK CREATIVELY



Kip TOM

> "GET INVOLVED AND LEARN ALL YOU CAN. THE LESSONS WILL BE APPLICABLE TO YOU FOR THE REST OF YOUR LIFE." – KIP TOM

On the RECORD

Northern Indiana farmer, entrepreneur and former National FFA Foundation trustee Kip Tom has been nominated to be the new U.S. Ambassador to the Food and Agriculture Organization of the United Nations in Rome, Italy. He credits FFA with teaching him many life lessons that he can use on the world stage.

Q: HOW DID YOU FIRST ENCOUNTER FFA?
A: I grew up on a small farm in northern Indiana near Leesburg. My parents, Everett and Marie, raised five kids on 120 acres. We learned the value of working hard and taking care of each other, including our neighbors.

When my siblings and I got into high school, we knew we would be a part of FFA because we would learn the professional skills needed in life. Be it *Robert's Rules of Order*, public speaking or various project skills, they are all things that a person uses just about every day.

Q: WHAT OTHER BIG LESSONS DID YOU LEARN IN FFA?
A: It taught us competitiveness in a spirited way that involves respect for everyone. We learned to strive for continuous improvement in everything we do. And we learned to help others improve, too.

Q: WOULD YOU CONTINUE TO USE THOSE LESSONS AS AMBASSADOR?
A: Absolutely. I often remember and think about the FFA Creed and what it says about growing and serving others. I will use all of that when I'm in Rome.

Q: WHAT ARE KEY ISSUES THAT WOULD BE ON YOUR AGENDA AS AMBASSADOR?
A: I will work with leaders from around the world at promoting initiatives to drive peace, security, agricultural development and accountability. I feel a great responsibility to make sure that the billions of dollars of U.S. taxpayer money that we invest in food and agriculture initiatives are well focused at driving peace and security in an accountable manner.

Q: WHAT ADVICE DO YOU GIVE TODAY'S FFA MEMBERS?
A: Get involved and learn all you can. The lessons will be applicable to you for the rest of your life. Wherever I go, be it in my local area or the halls of Congress in Washington, D.C., I meet so many people who, like me, have a background in FFA and use the lessons they learned every day. Those few years of high school and how you apply yourself there can make all the difference in your success for the rest of your life.

– By Gene Johnston

Photography: Courtesy Kip Tom

NAME: _____

Appendix 4: Future

Aligned to the following standards:
FFA. PL-A;FFA.PL-C.; FFA.PL-D.;FFA.PL-E; FFA.PG-J.;FFA.CS-M.; FFA.CS-N.; FFA.CS-O.; CCSS.RI.9-10.2;CCSS.RI.9-10.4;CCSS.W.9-10.2; CCSS.W.9-10.4; CCSS.ELA.WHST.9.10.4;CCSS.SL.9-10.4;CCSS.ELA.W.9-10.4 CRP.02; CRP.04

Created: Summer 2019 by the National FFA Organization

Part 1

DIRECTIONS:

Read "On the Record: Kip Tom" in the Summer 2019 issue of *FFA New Horizons.* Think about your future self — what you will be doing, what career you will have, etc. Answer the questions below from your future self's perspective. (*Think approximately 15 years in the future when answering the questions.)*

1. What career will you have? (*Identify the career and explain some of the duties and responsibilities of that career.)*



2. What educational or technical goals will you have accomplished?



3. What hobbies will you have?



What might be your greatest obstacles?

NAME: _____

Aligned to the following standards:
FFA. PL-A;FFA.PL-C.; FFA.PL-D.;FFA.PL-E; FFA.PG-J.;FFA.CS-M.; FFA.CS-N.; FFA.CS-O.; CCSS.RI.9-10.2;CCSS.RI.9-10.4;CCSS.W.9-10.2; CCSS.W.9-10.4; CCSS.ELA.WHST.9.10.4;CCSS.SL.9-10.4;CCSS.ELA.W.9-10.4 CRP.02; CRP.04

Part 2

DIRECTIONS

Read "On the Record: Kip Tom" in the Summer 2019 issue of *FFA New Horizons.* Answer the questions below. Visit these websites, http://www.fao.org/countryprofiles/index/en/?iso3=USA and https://www.state.gov/discoverdiplomacy/diplomacy101/people/170341.htm, to answer the questions.

1. What is the role of an ambassador?





2. What are qualities of a successful ambassador?

3. What is the goal of the FAO?

Ambassador Tom will be U.S. ambassador to the Food and Agriculture Organization of the United Nations in Rome, Italy.

4. What is the FAO?

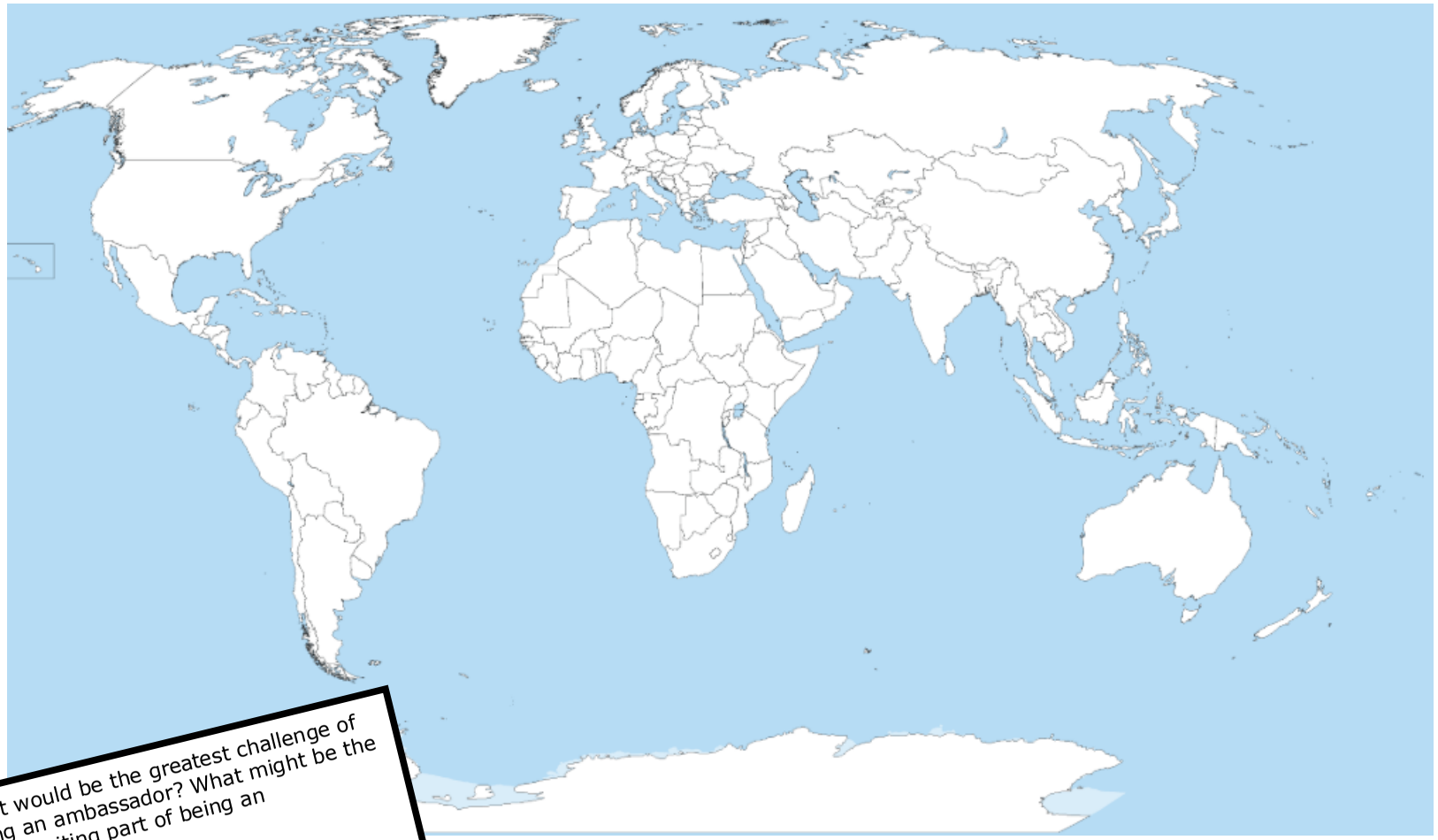
5. Browse the FAO website (http://www.fao.org/countryprofiles/index/en/?iso3=USA), and write down three facts that are interesting to you.



NAME: _____

DIRECTIONS

Where are the ambassadors located? Reference this website, https://www.state.gov/discoverdiplomacy/explorer/, to learn where U.S. ambassadors (embassies) are located around the world. On the map below, color in the specific location within the country where an ambassador is located. *Identify at least 25 ambassadors/embassies.*



hat would be the greatest challenge of being an ambassador? What might be the most exciting part of being an ambassador?

Aligned to the following standards:
FFA. PL-A;FFA.PL-C.; FFA.PL-D.;FFA.PL-E; FFA.PG-J.;FFA.CS-M.; FFA.CS-N.; FFA.CS-O.; CCSS.RI.9-10.2;CCSS.RI.9-10.4;CCSS.W.9-10.2; CCSS.W.9-10.4; CCSS.ELA.WHST.9.10.4;CCSS.SL.9-10.4;CCSS.ELA.W.9-10.4 CRP.02; CRP.04



ARTICLE SUMMARY

Convincing Cotton Cynics

Find out how an FFA member proved naysayers wrong by successfully growing cotton in northern Missouri.

BELL RINGER:

Describe a situation where you had to prove someone wrong and explain the outcome. How did it affect you, and what did you learn?

If you haven't had to prove someone wrong, describe a situation where you have seen someone else (in real life or a movie) prove someone wrong and explain the outcome. How did it affect you and what did you learn?

DISCUSSION QUESTIONS

1. What are some basic requirements to grow cotton?
2. What are potential problems that could affect cotton production?
3. In what regions of the country does cotton grow?
4. What products are made using cotton?

ACTIVITY

On their own paper, have students complete the bell ringer activity. Once all students have written down an answer, have them discuss and explain their answers with their neighbors. After five minutes, call on a few students to share their answers.

Each student needs a copy of the "Appendix 5: Convincing Cotton Cynics" worksheet. Students should read the article "Convincing Cotton Cynics." After reading the article, have students complete the worksheet. The worksheet is divided into three parts: (1) students will identify products made from cotton and cotton by-products by circling the correct picture(s) on the worksheet, (2) students will research the process of harvesting and producing cotton, and (3) students will research the climate that cotton is grown in, answer related questions and, using the map provided, color code the regions where cotton is grown in in the U.S.

Have students complete the exit ticket before leaving class.

FFA TIP

Invite your county cooperative extension agent to speak to your agriculture classes about crops that are produced in your area and how it affects the local economy and agriculture industry.

SAE TIP

Are their heirloom crops or animals that were historically grown in your area but are now scarce or missing?

Contact heirloom crop and animal producers in your area or other areas of the country. Connect students with them to learn more about these products and open potential SAE opportunities.

VOCABULARY

Generate
Ginned
Deterred

EXIT TICKET

1. What are two facts you learned about producing and harvesting cotton?
2. What advice would you give to a younger student about proving someone wrong?

CAREER FOCUS AREA

Plant Systems

RESOURCE HIGHLIGHT

SAE Idea Cards, https://FFA.box.com/v/saeideacards
SAE Videos, FFA.org/ffa-video-center/sae-video-library

REFERENCES

The Story of Cotton, https://www.cotton.org/pubs/cottoncounts/story/how.cfm

United States Department of Agriculture, https://www.ers.usda.gov/topics/crops/cotton-wool/

The Story of Cotton, https://www.youtube.com/watch?v=AAUQNMldp_Y

Cotton is a Miracle of Nature, http://www.nccotton.org/wp-content/uploads/2012/05/cottonmiraclewebformat.pdf

Cotton Facts for Kids, https://kids.kiddle.co/Cotton

APPENDICES

Appendix 5 - Convincing Cotton Cynics

STANDARDS ALIGNMENT

• FFA Precept: FFA.PL-A, FFA.PL-C, FFA.PL-E, FFA.PG-J, FFA.CS-M, FFA.CS-N, FFA.CS-O **• Common Core-Reading: Information Text:** CCSS.ELA.RI.9.10.2, CCSS.ELA.RI.9-10.4 **• Common Core-Writing:** CCSS.ELA-LITERACY.W.9-10.2 **• Common Core-Speaking and Listening:** CCSS.ELA-LITERACY.SL.9-10.4, CCSS.ELA-LITERACY.W.9-10.4 **• Common Core – Literacy in Science & Technical Subjects: Writing:** CCSS.ELA-Literacy.WHST.9.10.4 **• Common Core-Math Practices:** MP2, MP6 **• AFNR Career Ready Practices:** CRP.02, CRP.04 **• P21 Skills:** COMMUNICATION, CRITICAL THINKING AND PROBLEM SOLVING, GLOBAL AWARENESS, INITIATIVE AND SELF-DIRECTION, LEADERSHIP AND RESPONSIBILITY, THINKING CREATIVELY



LEADING THE CHARGE ON CLIMATE CHANGE

STUDENTS SHINE IN A HOT NEW PODCAST ABOUT A WARMING WORLD.

Christiane Maertens has one word for her initial attempt at creating a podcast focused on climate issues: Fail.

Although the North American Association for Environmental Education, the nonprofit behind the *Imagine If* podcast, had access to renowned climate scientists, the team, including executive producer and host Maertens, realized it lacked inspiration.

The solution: Talk to students who have experienced impacts of climate change and have found solutions in their communities. The *Imagine If* podcast produced five episodes in 2018. In the episode titled "What's at Steak," Bailey Morrell, third-generation cattle rancher and former Willows FFA member, talked to California Secretary of Food and Agriculture Karen Ross about the impact of drought and efforts to conserve water on her family farm.

"Giving these passionate young people an opportunity to have a voice that's being taken seriously is really just awesome," Maertens says. "I want people [who are listening to the *Imagine If* podcast] to feel hopeful that there is so much good work happening out there. These students might not be solving climate change at the macro level, but when a listener can see how a student is doing impactful work on the micro level, it's inspiring."

– By Jodi Helmer

LISTEN UP!

Point your phone's camera at any icon like these to access additional digital content. You don't even have to snap a photo — just hover!

Listen to *Imagine If*

Tune in to *FFA Today*



Convincing COTTON CYNICS

THIS FFA MEMBER PROVES NAYSAYERS WRONG BY SUCCESSFULLY GROWING COTTON IN NORTHERN MISSOURI.

Several people told Norborne FFA member Garrett Heil that he couldn't grow cotton in northern Missouri's Carroll County.

"I remember sitting in my middle school history class when I was 13 years old and learning about the Civil War and cotton production, and everyone said it was impossible to grow cotton this far north," says Heil, currently a 17-year-old junior at Norborne High School in Norborne, Mo. "I told them I was going to grow it, and after a lot of research and hard work, I made it happen."



Heil had a hard time finding cotton seed to plant, initially having to use seed from a discarded bag in a local warehouse, and his first crop was ruined in a flood. However, he wasn't deterred; if anything, he only grew more determined.

"I started by planting just 5 acres of cotton on my family's farm, C&N Heil Farms Inc., and since then, I've gotten up to as many as 130 acres," Heil says. "Growing cotton not only has been a supervised agricultural experience (SAE) project for me, but also has been a way for me to generate an income after it's been ginned and graded. Producing this crop has taught me that taking chances can really pay off, especially if you're doing something you have a passion for."

Thanks to Heil, cotton is now being grown in Carroll County for the first time in roughly 150 years, and he hopes to inspire other farmers in nearby communities – even those farther north – to follow suit.

"If you put your mind to something, you can almost always make it happen," Heil says. "Nearly anything is possible if you have the right attitude."

– By Jessica Walker Boehm

SELECT YOUR SAE

Need ideas and inspiration for your SAE? Visit **FFA.org/SAE-Video-Library** to watch videos of interesting projects from members around the country.

Photography: Courtesy Garrett Heil; Illustrations: Alfadanz, Getty Images

Aligned to the following standards:
FFA. PL-A;FFA.PL-C.; FFA.PL-D.;FFA.PL-E; FFA.PG-J.;FFA.CS-M.; FFA.CS-N.; FFA.CS-O; CCSS.RI.9-10.2;CCSS.RI.9-10.4; CCSS.W.9-10.2; CCSS.W.9-10.4; CCSS.ELA.WHST.9.10.4;CCSS.SL.9-10.4;CCSS.ELA.W.9-10.4 CRP.02; CRP.04

NAME: _____

Appendix 5: Convincing Cotton Cynics

Created: Summer 2019 by the National FFA Organization

DIRECTIONS:

Part 1

Read "Convincing Cotton Cynics" in the Summer 2019 issue of *FFA New Horizons.* Answer the questions below.

1. Circle the items made with cotton and cotton by-products.



2. How many acres of cotton did Garrett start with?

3. How many acres does Garrett currently have?

4. What happened to his first crop?

1. Look around your classroom. Identify 5 items produced from cotton.

5. "*Growing cotton not only has been a* _____ _____ _____ (_____) project for me, but also has been a way for me to _____ an _____after it's been _____ and _____.

6. What has Garrett learned from producing cotton?

7. How does cotton production affect your daily life?

NAME: _____

Aligned to the following standards:
FFA. PL-A;FFA.PL-C.; FFA.PL-D.;FFA.PL-E; FFA.PG-J.;FFA.CS-M.; FFA.CS-N.; FFA.CS-O;
CCSS.RI.9-10.2;CCSS.RI.9-10.4; CCSS.W.9-10.2; CCSS.W.9-10.4;
CCSS.ELA.WHST.9.10.4;CCSS.SL.9-10.4;CCSS.ELA.W.9-10.4 CRP.02; CRP.04

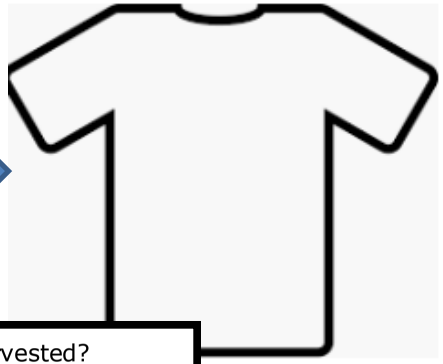
Part 2

DIRECTIONS:

Reference this website, https://kids.kiddle.co/Cotton, to answer the questions below.







1. Describe the machines used to harvest cotton.

2. What is the process after cotton is harvested?

3. Describe the strength of cotton fibers.

4. What happens to the cottonseed after it is removed?

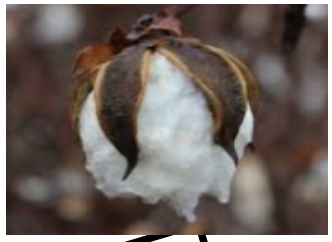
NAME: _____

Aligned to the following standards:
FFA. PL-A;FFA.PL-C.; FFA.PL-D.;FFA.PL-E; FFA.PG-J.;FFA.CS-M.; FFA.CS-N.; FFA.CS-O.; CCSS.RI.9-10.2;CCSS.RI.9-10.4; CCSS.W.9-10.2; CCSS.W.9-10.4; CCSS.ELA.WHST.9.10.4; CCSS.SL.9-10.4; CCSS.ELA.W.9-10.4 CRP.02; CRP.04

To further learn about cotton production, watch *The Story of Cotton* and answer the questions below. The video URL is https://www.youtube.com/watch?v=AAUQNMldp_Y. While watching the video, focus on the steps from planting to the finished product, flower of the cotton plant and how farmers know when it is time to harvest. *If YouTube is blocked, read this article (or one similar), "Cotton is a Miracle of Nature," to answer the questions. The URL for the article is* http://www.nccotton.org/wp-content/uploads/2012/05/cottonmiraclewebformat.pdf.

What are **10** cool facts you learned about cotton production while watching the video? *List the facts below.*

How does a farmer know when it is time for harvest?





Using the facts you listed, write a 2- to 3-sentence summary of the video.

Cotton is one of the most important textile fibers in the world, averaging about 25 percent of total world fiber use. The United States is the world's third-largest cotton producer and the leading cotton exporter, accounting for one-third of global trade in raw cotton. The U.S. cotton industry accounts for more than $21 billion in products and services annually, generating more than 125,000 jobs in the industry sectors from farm to textile mill.
(https://www.ers.usda.gov/topics/crops/cotton-wool/)

Read the passage to the left. How does cotton contribute to the economy?

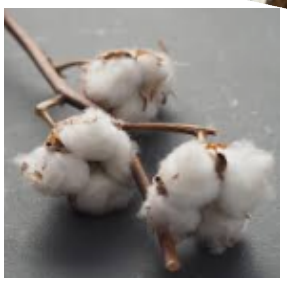
NAME: _____

Aligned to the following standards:
FFA. PL-A;FFA.PL-C.; FFA.PL-D.;FFA.PL-E; FFA.PG-J.;FFA.CS-M.; FFA.CS-N.; FFA.CS-O; CCSS.RI.9-10.2;CCSS.RI.9-10.4; CCSS.W.9-10.2; CCSS.W.9-10.4; CCSS.ELA.WHST.9.10.4;CCSS.SL.9-10.4;CCSS.ELA.W.9-10.4 CRP.02; CRP.04

In the labeled areas below, draw a cotton plant and cotton boll and describe each.







Cotton Plant:

Cotton Boll:

NAME: _____

Part 3

Aligned to the following standards:
FFA. PL-A;FFA.PL-C.; FFA.PL-D.;FFA.PL-E; FFA.PG-J.;FFA.CS-M.; FFA.CS-N.; FFA.CS-O; CCSS.RI.9-10.2;CCSS.RI.9-10.4; CCSS.W.9-10.2; CCSS.W.9-10.4; CCSS.ELA.WHST.9.10.4;CCSS.SL.9-10.4;CCSS.ELA.W.9-10.4 CRP.02; CRP.04

DIRECTIONS

Utilize this website, https://www.cotton.org/pubs/cottoncounts/story/where.cfm, to answer the questions below.

1. What climate can cotton grow in?

2. Why can cotton not be grown in certain climates?



3. What is the average yield for cotton?

What does yield mean?

4. What countries grow most of the world's cotton?



Color the states/region where cotton is produced in the United States.



ARTICLE SUMMARY

Talking Points: Food Waste

The amount of food wasted in the United States is a growing problem. Read this article to learn key points and facts with information from No Taste for Food Waste.

BELL RINGER:

Why is food waste a growing problem in the U.S.? Explain your answer

DISCUSSION QUESTIONS

1. Why is food waste an important issue?
2. How can we as a class, school and society help with the food waste issue?
3. How can a long-term positive impact change the food waste issue?

3a. How can a short- or long-term negative impact change the food waste issue?

ACTIVITY

On their own paper, have students complete the bell ringer activity. Once all students have written an answer, have them discuss and explain their answers with their neighbors. After five minutes, call on a few students to share their answers.

Each student needs a copy of the "Appendix 6: Talking Points: Food Waste" worksheet. Students should read the article "Talking Points: Food Waste." After reading the article, have students complete the worksheet. The worksheet is divided into three parts. (1) Students will answer questions related to the article. (2) Based on what they see in their homes and school, students will respond to questions related to food waste. Students will also record the food items they throw away over the course of a day. (3) Students will answer questions about a current school recycling program. If no current program exists, students will answer questions related to developing a school recycling program.

Have students complete the exit ticket before leaving class.

FFA TIP

Take students to visit the local recycling center or invite individuals from the recycling center to speak to your agriculture classes.

Visit the FFA Living to Serve webpage to plan a service project for your school or community, FFA.org/livingtoserve/plan-your-service-project. Additionally, visit the Living to Serve Grant webpage and apply for a Living to Serve Grant to help with the service project, FFA.org/livingtoserve/grants.

SAE TIP

Potential supervised agricultural experience (SAE) programs related to food waste:

- Work with supermarkets and local producers to take expired or unsold breads, vegetables and fruits for animal feed.
- Create a school-based SAE to compost cafeteria food waste.
- Members can create and present curriculum and information about food waste through newsletters, radio, social media, etc. to educate people about reducing food waste.

VOCABULARY

Greenhouse gas emissions
Compost
Polarized

EXIT TICKET

Write down three things you learned, two things you found unique/interesting and one thing you have a question about.

CAREER FOCUS AREA

Environmental Science

RESOURCE HIGHLIGHT

FFA Living to Serve Service Project, FFA.org/livingtoserve/plan-your-service-project

FFA Living to Serve Grants, FFA.org/livingtoserve/grants

REFERENCES

Reducing Wasted Food at Home, https://www.epa.gov/recycle/reducing-wasted-food-home

APPENDICES

Appendix 6 - Talking Points: Food Waste

STANDARDS ALIGNMENT

FFA Precept: FFA.PL-A, FFA.PL-C, FFA.PL-E, FFA.PG-J, FFA.CS-M, FFA.CS-N, FFA.CS-O • **Common Core-Reading: Information Text:** CCSS.ELA.RI.9.10.2, CCSS.ELA.RI.9-10.4 • **Common Core-Writing:** CCSS.ELA-LITERACY.SL.9-10.4, CCSS.ELA-LITERACY.W.9-10.4 • **Common Core – Literacy in Science & Technical Subjects: Writing:** CCSS.ELA-Literacy.WHST.9.10.4 • **Green/Sustainability Knowledge and Skill Statements:** AFNR Career Cluster, Statement 3 • **Common Core – Math Practices:** MP2, MP6 • **AFNR Career Ready Practices:** CRP.02, CRP.04 • **P21 Skills:** COMMUNICATION, CRITICAL THINKING AND PROBLEM SOLVING, GLOBAL AWARENESS, INITIATIVE AND SELF-DIRECTION, LEADERSHIP AND RESPONSIBILITY, THINK CREATIVELY

TALKING POINTS: Food Waste



ACCORDING TO THE NO TASTE FOR FOOD WASTE INITIATIVE, THE AMOUNT OF FOOD WASTED IN THE UNITED STATES EQUATES TO MORE THAN 1,250 CALORIES PER DAY, PER PERSON, ANNUALLY. EVEN FFA SPONSORS SUCH AS VALENT USA AND LAND O'LAKES ARE INVOLVED IN THE INITIATIVE TO WASTE LESS FOOD. PREPARE YOURSELF TO ANSWER THESE COMMON QUESTIONS WITH INFORMATION FROM NO TASTE FOR FOOD WASTE.

Q: HOW MUCH FOOD IS REALLY WASTED IN THE U.S.?

A: The average American family throws away about 25 percent of the food and beverages it purchases, which costs each family around $1,600 annually. Between 125 and 160 billion pounds of food are left uneaten in the U.S. every year – 76 billion of that is due to household waste. This averages out to 238 pounds of food waste per person, per year.

Q: HOW DOES OUR FOOD WASTE IMPACT THE ENVIRONMENT AND THE WORLD AROUND US?

A: Food waste is the No. 1 contributor to landfills, taking up 21 percent of all landfill content each year. Because wasted food has to break down, it's also responsible for at least 2.6 percent of all U.S. greenhouse gas emissions.

Q: WHAT CAN THE INDUSTRY OF AGRICULTURE DO TO HELP?

A: The land used to grow uneaten food makes up about 18 to 28 percent of total U.S. cropland (more than the entire state of New Mexico), and between 21 to 33 percent of agricultural water use is accounted for by food waste. Many farmers have cut back on food waste by using unsold produce as feed or compost in soil. Others have donated unused food or have found alternate uses for products deemed unfit for sale in a store.

The FFA #SpeakAg Dialogues are a forum for effective conversation to break through polarized opinions regarding agriculture. **Visit FFA.org/FoodWaste** to download a variety of #SpeakAg cards about food waste, then distribute them to start meaningful conversations. You can also visit **FFA.org/FFAVideoCenter** and click "#SpeakAgDialogues" to watch videos on this topic.

– By Josh Cook

CELEBRATING WOMEN IN FFA

2019 marks 50 years of membership for women in FFA. Visit FFA.org/50YearsOfWomenInFFA to follow our ongoing coverage of the groundbreakers who paved the way, the momentous events that solidified gender equity and the women who lead today.

JUNE–JULY CALENDAR

June 1:
LIVING TO SERVE DAY OF SERVICE MINI-GRANT DUE
Apply for up to $400 to be used on a one-time community service project. Applications are due on the first of each month. Visit **FFA.org/LivingToServe** for more information.

June 1:
ALUMNI AND SUPPORTERS GRANT APPLICATION DUE
Various grants are available for FFA alumni and supporters chapters. Visit **FFA.org/AlumniGrants** for more information.

June 17:
YEARLONG LIVING TO SERVE GRANT DUE
Apply for $3,000 to support a service-learning project that spans the entire school year. **Visit FFA.org/LivingToServe.**

July 1:
VARIOUS ALUMNI AND SUPPORTERS AWARDS APPLICATIONS DUE
Visit **FFA.org/AlumniAwards** for more information about Outstanding Alumni and Supporters Achievement, Outstanding Chapter, and Outstanding State Association Awards.

July 26-27:
MINNESOTA ALUMNI AND SUPPORTERS REGIONAL DEVELOPMENT CONFERENCE
Registration opens June 3 for this free RDC in Randolph, Minn. Visit **FFA.org/GoToRDC** for more information.

Photography: Wes Abrams, Getty Images

NAME: _____

Appendix 6: Talking Points: Food Waste

Created: Summer 2019 by the National FFA Organization

DIRECTIONS:
Read "Talking Points: Food Waste" in the Summer 2019 issue of *FFA New Horizons.* Answer the questions below.

1. How much does the average American family throw away?

2. How much does this cost a family annually?





3. Between 125 and 260 billion pounds of food are left _____ in the _____ every year — ____ billion of that is due to _____ waste.

4. What is the No. 1 contributor to landfills?

_____

This takes up _____ percent of all landfill content each year.

5. Food waste is hard to break down. Because of this, it is responsible for at least _____ percent of all U.S. greenhouse gas emissions.

A. 5
B. 5.2
C. 2.8
D. 2.6



6. The land used to grow uneaten food makes up about _____ to _____ percent of total U.S. cropland (more than the entire state of _____ _____).

7. What are farmers doing to help the food waste issue?



Aligned to the following standards:
FFA.PL-A.; FFA.PL-C.; FFA.PL-D.; FFA.PL-E.;FFA.PG-J.; FFA.CS-M.; FFA.CS-N.; FFA.CS-O; CCSS.ELA.RI.9.10.2; CCSS.RI.9-10.4; CCSS.W.9-10.2; CCSS.W.9-10.4; CCSS.SL.9-10.4; CRP.02; CRP.04; CCSS.ELA.WHST.9.10.4; AFNR Career Cluster, Statement 3; MP2; MP6

NAME: _____

Aligned to the following standards:
FFA.PL-A.; FFA.PL-C.; FFA.PL-D.; FFA.PL-E.;FFA.PG-J.; FFA.CS-M.; FFA.CS-N.; FFA.CS-O; CCSS.ELA.RI.9.10.2; CCSS.RI.9-10.4; CCSS.W.9-10.2; CCSS.W.9-10.4; CCSS.SL.9-10.4; CRP.02; CRP.04; CCSS.ELA.WHST.9.10.4; AFNR Career Cluster, Statement 3; MP2; MP6

Part 2

DIRECTIONS:
Answer the questions below based on your own food waste and what you see in your school cafeteria and at home.



In the space below, list the food items you throw away over the course of one day. List each item and the quantity.
Example: one apple



Write a paragraph describing what food items you see in the trash after lunch at school:



How do you feel after seeing all of the food waste in the trash cans?

Record the food items you see in the trash at your house:



NAME: _____

Aligned to the following standards:
FFA.PL-A.; FFA.PL-C.; FFA.PL-D.; FFA.PL-E.;FFA.PG-J.; FFA.CS-M.; FFA.CS-N.; FFA.CS-O; CCSS.ELA.RI.9.10.2; CCSS.RI.9-10.4; CCSS.W.9-10.2; CCSS.W.9-10.4; CCSS.SL.9-10.4; CRP.02; CRP.04; CCSS.ELA.WHST.9.10.4; AFNR Career Cluster, Statement 3; MP2; MP6

Part 3

DIRECTIONS

Answer the questions below. Utilize this website, https://www.epa.gov/recycle/reducing-wasted-food-home, to help answer some of the questions.

1. What can you do to reduce your own food waste? What steps can you take?





Does your school have a recycling program?

YES

Who collects the recycling?

NO

Develop a plan to start a recycling program by answer the following questions.

How will the recyclables be collected?

When is it collected?

When will the recyclables be collected?





Who will collect the recyclables?

Where will the recyclables be taken?

How often will they be collected?

NAME: _____

Aligned to the following standards:
FFA.PL-A; FFA.PL-E; FFA.PG-J; FFA.CS-N; CCSS.ELA.RI.9-10.2; CCSS.ELA.RI.9-10.4; CCSS.ELA.WHST.9.10.4; CRP.02; CRP.04

Key — Appendix 1: Giving Back

Created: Summer 2019 by the National FFA Organization

DIRECTIONS:

Read "It's All About the Kids" in the Summer 2019 issue of *FFA New Horizons*, and complete the following activities.



Based on what you read, what is an alumni member or alumnus?
An alumnus is a person who has graduated from an educational institution or was a member of a specific group (ex. athletic team).

Based on the reading, what are three reasons why someone might want to become an FFA alumnus? Answers will vary.

1. _____
2. _____
3. _____

Identify two groups (ex. football team, high school, college, etc.) you will/could become an alumnus of one day. Answers will vary. Ex. Iowa State University

1. _____
2. _____

Draw a picture of what it means to become an alumnus and the responsibilities an alumnus may be tasked with.
Answers will vary.

Once you are an alumnus, what special skills or talents can you provide to help your local school or FFA chapter?
Answers will vary.

NAME: _____

List three helpful acts you have witnessed alumni or parent helpers do at your school. Answers will vary. Examples: purchasing equipment for the football team, helping with contest preparation, serving as judges

1. _____
   _____
2. _____
   _____
3. _____



What impact have these acts had on your school? Answers will vary. Example: Our alumni help provide the things we need to be successful and help us to be better people through mentorship (ex. preparing for contests, events, etc.).

Indicator	Very Strong Evidence of Skill (5–4 points)	Moderate Evidence of Skill (3–2 points)	Weak Evidence of Skill (1–0 points)	Points Earned
Format	The document was directed to the appropriate person with an appropriate address and salutation. The level of formality was appropriate for the type of correspondence.	The document was directed to the appropriate person with an appropriate address and salutation with minor errors. The level of formality was generally appropriate for the type of correspondence.	The document was not directed to the appropriate person. No address or salutation was included. The level of formality was not appropriate.	
Content	Effectively expressed appreciation and the impact the person had	Attempted to express appreciation and generally expressed the impact the person had	Did not attempt to express appreciation or impact	
Grammar/ Punctuation/ Spelling	Spelling, grammar and punctuation are extremely high quality with two or less errors in the document.	Spelling, grammar and punctuation are adequate with three to five errors in the document.	Spelling, grammar and punctuation are less than adequate with six or more errors in the document.	
Overall Impression	Writing was legible, and length was appropriate.	Writing was difficult to read, and length was generally appropriate.	Writing was illegible, and length was inappropriate.	

Total: _____

Aligned to the following standards:
FFA.PL-A; FFA.PG-J; FFA.CS-N; CCSS.ELA.RI.9-10.4; MP5; MP6; CRP.02; CRP.04; CRP.06

NAME: _____

KEY — Appendix 2: Preparing for the Worst

Created: Summer 2019 by the National FFA Organization

DIRECTIONS:
Read the scenario and answer the questions below.

Imagine this:
No electricity. No water. Demolished houses. Steep mountain roads made impassable by mud and vegetation. Rations at the grocery store to ensure there is enough food to go around. Limited medical supplies at the hospital. A lack of gasoline, even for first responders, and long lines of cars waiting for the next tanker. Helicopters flying overhead, dropping supplies for stranded communities.

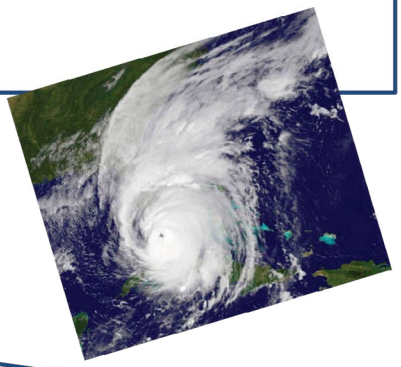
How does this situation make you feel? What would you do?
Answer will vary.

DIRECTIONS:
Read the article "Help After the Hurricane" in the Summer 2019 issue of *FFA New Horizons.* Disaster can strike when we least expect it. However, understanding how we can prepare and knowing where and how to get help, if needed, can enable us to feel more confident when poor weather is predicted or hits close to home.

(1) Review each of the natural disasters listed below and then complete the matching activity using this information.

- Earthquake
- Flood
- Landslide
- Tornado
- Wildfire

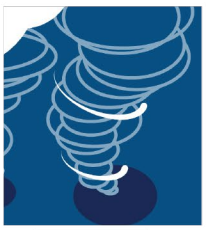




What impact do natural disasters have on agriculture? Give 2 specific examples.
Answers will vary.

What would you and your family do if a natural disaster hit your community? Answers will vary.

NAME: _____







1. B Which natural disaster requires you to stay in bed if that is where you are when it begins?
2. D Which natural disaster is often caused by humans?
3. D Which natural disaster can be caused or intensified with little to no rain and high winds?
4. B Which natural disaster can cause a tsunami, landslide or avalanche?
5. A The best place to be is in a basement, cellar or windowless centralized room.
6. E Moving to higher ground may be your best option during this natural disaster.
7. C This natural disaster can be caused by flooding.
8. B "Drop, cover and hold on" is what you should do immediately.
9. C This is when rocks and other debris move down a slope.
10. A This has rotating columns of air that can touch the ground.

CALL OUT!
Did you know National FFA offers grants that could help with relief efforts for natural disasters? Learn more at FFA.org/livingtoserve/.

(2) Select one of the natural disasters most likely to occur in your state. The Federal Emergency Management Agency (FEMA) works to educate the public and respond when disasters occur. However, some people do not understand the preparation needed, the correct actions to take and the protocol after a natural disaster. Using blank paper, create your own infographic to educate others in your school.

a. Select one natural disaster.
b. Look at the resources offered by FEMA (https://www.fema.gov/) and USA.gov (https://www.usa.gov/after-disaster).
c. Create an infographic that will resonate with your peers.
d. Note: If you would like to create your infographic digitally, resources like Piktochart are available online but require login information.

INFOGRAPHIC RUBRIC

Criteria	Below Average (0–1 points)	Average (2–3 points)	Above Average (4–5 points)
Knowledge	Work shows little to no understanding of the topic.	Work shows some understanding of the topic.	Work shows excellent understanding of the topic.
Quality	Work is very low quality with little evidence of effort.	Work shows some effort and is mostly neat.	Work shows excellent effort and is of high quality.
Instructions	Student did not follow instructions for the task.	Student followed some of the instructions.	Student followed all instructions for the task.
Timeliness	Work was submitted **more** than **one day** late.	Work was **one day** late.	Work was submitted on time.
Audience	Developed for adults or smaller children	_____	Developed for peers
		Total	

NAME: _____

Aligned to the following standards:
AGPC01.02; CS.02; FFA.PL-A; FFA.PL-E; FFA.PL-F; FFA.PG-I; FFA.PG-J; FFA.CS-M; FFA.CS-N; AG2; CCSS.ELA.RI.9-10.4; MP5; MP6; CRP.02; CRP.04; CRP.06; CRP.07; CRP.08

Key — Appendix 3: Engineering and Agriculture

Created: Summer 2019 by the National FFA Organization

Part 1



DIRECTIONS:

Begin by answering the following questions:

How do you act when you are happy? Give two examples.

Answers will vary.

1. _____
2. _____



How do you act when you are sad? Give two examples.

Answers will vary.

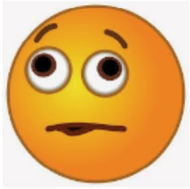
1. _____
2. _____



How do you act when you are bored? Give two examples.

Answers will vary.

1. _____
2. _____



What do animals do when they are happy, sad and bored?

Animals will exhibit behaviors like we do. Examples: happy = running and playing, sad = not sociable, bored = pacing

What makes humans and animals act this way?

Not having the correct environment or stimulation can cause behavior to change.

DIRECTIONS:

Read the article "Engineering Elephants" in the Summer 2019 issue of *FFA New Horizons*. Complete the following activities once you have finished reading.

(1) Visit the SeaWorld Parks and Entertainment website, https://seaworld.org/animals/all-about/training/animal-behavior-and-learning/, and answer the following questions.

What is animal behavior?

Anything that an animal does is a behavior.

What is a specific example of a behavior shown by a dog?

Answers will vary. Example: wagging his or her tail



What is the scientific study of animal behavior called?

Ethology

What are the four basic reasons why animals behave the way they do?

1. Finding food and water 2. Interaction 3. Avoiding predators 4. Reproduction

NAME: _____

(2) Now that we have a basic understanding of what behavior is, let's explore different behaviors. Using the website, https://sciencing.com/innate-learned-animal-behavior-6668264.html, define each of the different types of animal behavior and draw a picture that represents that type of behavior. Your drawing must be an example **not** used on the website. Think about the animals you own, come into contact with every day or have seen in videos (ex. dogs, cats, sheep, rabbits, etc.) to complete this activity.

Innate Behavior

Definition: A behavior that an animal is born with; it is in his or her DNA.

Picture: Pictures will vary. Example: sea turtles hatching and heading toward the sea

Vs.

Learned Behavior

Definition: A behavior that is learned by watching another animal.

Picture: Pictures will vary. Example: how to hunt for food



(3) We now have an understanding of behaviors in animals. Let's look at behaviors that are exhibited and what they could mean.

a. Five dog behaviors are listed. Using the Hill's Science Diet website, https://www.hillspet.com/dog-care/behavior-appearance/types-of-common-dog-behavior, identify why the dog is exhibiting that behavior and a corrective action that can be taken.

b. Select an animal (other than a dog). Identify 5 behaviors that animal exhibits. Thinking about the behavior, what is a corrective action (for negative behaviors) or reinforcement of the action (for good behaviors) that can be taken to address each behavior?

In the article, they talk about how the elephants sway. Why did the elephants do this? How can the caretakers correct the behavior?

The elephants sway out of boredom and need to have activity and stimuli in their environment. The elevated hay feeder will help.



Dog Behaviors:

1. Biting
   a. Why? Anxiety, fear, aggression
   b. Corrective action: Reduce stress; may need an animal behaviorist
2. Yawning
   a. Why? Tired or nervous
   b. Corrective action: Reduce stressors
3. Circling
   a. Why? Health problem of some sort
   b. Corrective action: A trip to the vet
4. Panting
   a. Why? Hot or in pain
   b. Corrective action: Water/reduce physical activity until cool; visit a vet

Your Selected Animal: _____

1. _____
   c. Why?
   d. Corrective action or reinforcement of action:
2. _____
   a. Why?
   b. Corrective action or reinforcement of action:
3. _____
   a. Why?
   b. Corrective action or reinforcement of action:
4. _____
   a. Why?
   b. Corrective action or reinforcement of action:

Answers will vary. Animal should be something other than a dog.

NAME: _____

Part 2

DIRECTIONS:

Within the article, students had to apply the skills they learned in their agricultural mechanics class. Now, we will walk through some of the most common welding joints used in the industry, which would have been used to create the elephant feeder. Using the website http://www.theweldingmaster.com/types-welding-joints/, examine each of the different types of welding joint and the variations in each weld. After you learn about each weld, you will create the weld using graham crackers and icing. Draw or take a picture and place it next to each weld below. If you are not performing this lab, draw a picture of each joint weld.

Butt Joint

Description:

Formed by placing two pieces of metal side-by-side and laying a bead to connect the two pieces

Variations:

Example: Bevel groove weld

Picture:



Corner Joint

Description:

Two metal pieces forming a right angle

Variations:

Example: spot weld

Picture:



T Joint

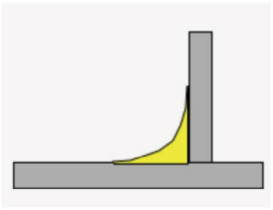
Description:

Placing one piece of metal upright on top of a horizontal piece of metal and laying beads on each side, creating two right angles

Variations:

Example: slot weld

Picture:





NAME: _____

Lap Joint

Description:

Two pieces of metal are placed horizontally on top of each other (one piece hanging out over the other) and then two welds are made.

Variations:

Example: spot weld

Picture:



Edge Joint

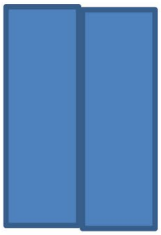
Description:

Welding the edges of two pieces of metal together

Variations:

Example: square-groove weld

Picture:





Find a weld that you have in your classroom! Describe it.

Answers will vary. Example: desk legs

What role do welders play in our everyday lives? (Hint: Think about your day-to-day tasks).

Welders are crucial to the development of many structures and products we depend on. Examples: buildings, cars (even though the welding is automated).



What classes could you take to prepare for a career in welding?

Agricultural mechanics, industrial technology classes, math classes

NAME: _____

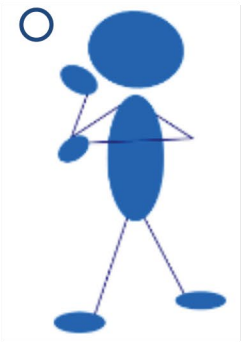
Part 3

DIRECTIONS:

You have now learned about animal behavior and welding. How do they fit together? Read the scenario below. Thinking about what you have learned, construct a solution to the problem.

Scenario:

Your friend has six rabbits of varying breeds. The rabbits are cared for daily. These rabbits are not only for meat purposes, but also serve as pets. The rabbits have been consistently hopping back and forth in front of the door to their enclosure and flipping their feed dishes. This behavior has caused sore hocks and a loss of feed.



(1) Identify the behaviors exhibited by the rabbits.

The rabbits are moving back and forth and dumping their feed dishes.

(2) Why do you think they are exhibiting these behaviors?

The rabbits could be bored.

(3) Design a hutch (rabbit house) that will fix the issues your friend is having with the rabbits. Draw a picture of the hutch below. Be sure to label any welding joints that may be used and describe why your design will solve the problem.

Design	**Explanation**
Answers will vary.	Answers will vary.

NAME: _____

KEY — Appendix 4: Future

Aligned to the following standards:
FFA. PL-A;FFA.PL-C.; FFA.PL-D.;FFA.PL-E; FFA.PG-J.;FFA.CS-M.; FFA.CS-N.; FFA.CS-O.; CCSS.RI.9-10.2;CCSS.RI.9-10.4;CCSS.W.9-10.2; CCSS.W.9-10.4; CCSS.ELA.WHST.9.10.4;CCSS.SL.9-10.4;CCSS.ELA.W.9-10.4 CRP.02; CRP.04

Part 2

DIRECTIONS

Read "On the Record: Kip Tom" in the Summer 2019 issue of *FFA New Horizons.* Answer the questions below. Visit these websites, http://www.fao.org/countryprofiles/index/en/?iso3=USA and https://www.state.gov/discoverdiplomacy/diplomacy101/people/170341.htm, to answer the questions.

1. What is the role of an ambassador?
An ambassador is the president's highest-ranking representative to a specific nation or international organization abroad. An ambassador coordinates the activities not only of the Foreign Service Officers and staff, but also represents other U.S. agencies in the country.





2. What are qualities of a successful ambassador?

An effective ambassador has to be a strong leader, a good manager, a resilient negotiator and a respected representative of the United States.

3. What is the goal of the FAO?
To achieve food security for all and make sure that people have regular access to enough high-quality food to lead active, healthy lives.

Ambassador Tom will be U.S. ambassador to the Food and Agriculture Organization of the United Nations in Rome, Italy.

4. What is the FAO? The Food and Agriculture Organization. It is a specialized agency of the United Nations that leads international efforts to defeat hunger.

5. Browse the FAO website (http://www.fao.org/countryprofiles/index/en/?iso3=USA), and write down three facts that are interesting to you.

NAME: _____

Aligned to the following standards:
FFA. PL-A;FFA.PL-C.; FFA.PL-D.;FFA.PL-E; FFA.PG-J.;FFA.CS-M.; FFA.CS-N.; FFA.CS-O.; CCSS.RI.9-10.2;CCSS.RI.9-10.4;CCSS.W.9-10.2; CCSS.W.9-10.4; CCSS.ELA.WHST.9.10.4;CCSS.SL.9-10.4;CCSS.ELA.W.9-10.4 CRP.02; CRP.04

Part 3

DIRECTIONS

Where are the ambassadors located? Reference this website, https://www.state.gov/discoverdiplomacy/explorer/, to learn where U.S. ambassadors (embassies) are located around the world. On the map below, color in the specific location within the country where an ambassador is located. *Identify at least 25 ambassadors/embassies.*

For examples of answers, see the yellow boxes below. For an extensive list, visit https://www.state.gov/discoverdiplomacy/explorer/#places.



What would be the greatest challenge of being an ambassador? What might be the most exciting part of being an ambassador?

NAME: _____

Aligned to the following standards:
FFA. PL-A;FFA.PL-C.; FFA.PL-D.;FFA.PL-E; FFA.PG-J.;FFA.CS-M.; FFA.CS-N.; FFA.CS-O;
CCSS.RI.9-10.2;CCSS.RI.9-10.4; CCSS.W.9-10.2; CCSS.W.9-10.4;
CCSS.ELA.WHST.9.10.4;CCSS.SL.9-10.4;CCSS.ELA.W.9-10.4 CRP.02; CRP.04

KEY — Appendix 5: Convincing Cotton Cynics

Created: Winter 2018 by the National FFA Organization

DIRECTIONS:
Read "Convincing Cotton Cynics" in the Summer 2019 issue of *FFA New Horizons.* Answer the questions below.

1. Circle the items made with cotton and cotton by-products.



2. How many acres of cotton did Garrett start with?
Garrett started with 5 acres of cotton on his family's farm.

3. How many acres does Garrett currently have?
Since he started, his production has grown to 130 acres.

4. What happened to his first crop?
It was hard to find cotton seed to plant, and he ended up using seed from a discarded bag in a local warehouse. His first crop was ruined in a flood.

5. "*Growing cotton not only has been a* supervised agriculture experience (SAE) project for me, but also has been a way for me to generate an income after it's been ginned and graded.

6. What has Garrett learned from producing cotton?
Producing cotton has taught Garrett that taking chances can really pay off, especially if it is something you have a passion for.

7. How does cotton production affect your daily life?
Answers will vary.

1. Look around your classroom. Identify 5 items produced from cotton.
Answers will vary.

NAME: _____

Aligned to the following standards:
FFA. PL-A;FFA.PL-C.; FFA.PL-D.;FFA.PL-E; FFA.PG-J.;FFA.CS-M.; FFA.CS-N.; FFA.CS-O;
CCSS.RI.9-10.2;CCSS.RI.9-10.4; CCSS.W.9-10.2; CCSS.W.9-10.4;
CCSS.ELA.WHST.9.10.4;CCSS.SL.9-10.4;CCSS.ELA.W.9-10.4 CRP.02; CRP.04

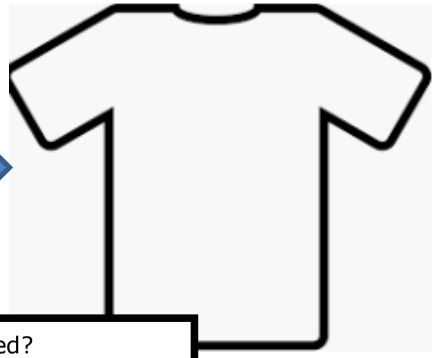
Part 2

DIRECTIONS:

Reference this website, https://kids.kiddle.co/Cotton, to answer the questions below.







1. Describe the machines used to harvest cotton.
Cotton picker – removes the cotton from the boll without damaging the cotton plant.

Cotton stripper – strips entire boll off the plant.

2. What is the process after it is harvested?

Cotton must be combed to remove the seeds. This was labor intensive until the invention of the cotton gin. The cotton gin quickly separates the seeds from fiber and combs them for spinning.

3. Describe the strength of cotton fibers.
A single fiber is not terribly strong. However, when multiple curling fibers are straightened and twisted together, they form a strong, smooth thread that can be knitted, woven or dyed.

4. What happens to the cottonseed after it is removed?
The cottonseed that remains after the cotton is ginned is used to produce cottonseed oil, and after refining, it can be consumed by humans. The cottonseed meal that is left is usually fed to livestock.

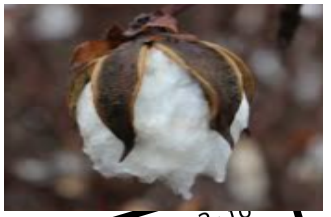
NAME: _____

Aligned to the following standards:
FFA. PL-A;FFA.PL-C.; FFA.PL-D.;FFA.PL-E; FFA.PG-J.;FFA.CS-M.; FFA.CS-N.; FFA.CS-O.; CCSS.RI.9-10.2;CCSS.RI.9-10.4; CCSS.W.9-10.2; CCSS.W.9-10.4; CCSS.ELA.WHST.9.10.4; CCSS.SL.9-10.4; CCSS.ELA.W.9-10.4 CRP.02; CRP.04

To further learn about cotton production, watch *The Story of Cotton* and answer the questions below. The video URL is https://www.youtube.com/watch?v=AAUQNMldp_Y. While watching the video, focus on the steps from planting to the finished product, flower of the cotton plant and how farmers know when it is time to harvest. *If YouTube is blocked, read this article (or one similar), "Cotton is a Miracle of Nature," to answer the questions. The URL for the article is* http://www.nccotton.org/wp-content/uploads/2012/05/cottonmiraclewebformat.pdf.

What are **10** cool facts you learned about cotton production while watching the video? *List the facts below.*
Answers will vary.

How does a farmer know when it is time for harvest?
When the plant leaves are dried and a sea of white surrounds the farmer. (~3:39 mark)





Using the facts you listed, write a 2- to 3-sentence summary of the video.
Answers will vary.

Cotton is one of the most important textile fibers in the world, averaging about 25 percent of total world fiber use. The United States is the world's third-largest cotton producer and the leading cotton exporter, accounting for one-third of global trade in raw cotton. The U.S. cotton industry accounts for more than $21 billion in products and services annually, generating more than 125,000 jobs in the industry sectors from farm to textile mill.
(https://www.ers.usda.gov/topics/crops/cotton-wool/)

Read the passage to the left. How does cotton contribute to the economy?
The U.S. is the world's third-largest cotton producer and leading cotton exporter. The U.S. cotton industry accounts for more than $21 billion in products and services annually. This generates more than 125,000 jobs in the industry.

NAME: _____

Aligned to the following standards:
FFA. PL-A;FFA.PL-C.; FFA.PL-D.;FFA.PL-E; FFA.PG-J.;FFA.CS-M.; FFA.CS-N.; FFA.CS-O; CCSS.RI.9-10.2;CCSS.RI.9-10.4; CCSS.W.9-10.2; CCSS.W.9-10.4; CCSS.ELA.WHST.9.10.4;CCSS.SL.9-10.4;CCSS.ELA.W.9-10.4 CRP.02; CRP.04

In the labeled areas below, draw a cotton plant and cotton boll and describe each.







Cotton Plant:
This website provides an extensive description of the parts of the cotton plant.
https://www.cottonacres.com/cotton-plant/

Cotton Boll:
This website provides an extensive description of a cotton boll. (6th paragraph)
http://www.cottonsjourney.com/storyofcotton/page3.asp

NAME: _____

Part 3

Aligned to the following standards:
FFA. PL-A;FFA.PL-C.; FFA.PL-D.;FFA.PL-E; FFA.PG-J.;FFA.CS-M.; FFA.CS-N.; FFA.CS-O; CCSS.RI.9-10.2;CCSS.RI.9-10.4; CCSS.W.9-10.2; CCSS.W.9-10.4; CCSS.ELA.WHST.9.10.4;CCSS.SL.9-10.4;CCSS.ELA.W.9-10.4 CRP.02; CRP.04

DIRECTIONS

Utilize this website, https://www.cotton.org/pubs/cottoncounts/story/where.cfm, to answer the questions below.

1. What climate can cotton grow in?
Cotton grows in warm climates.

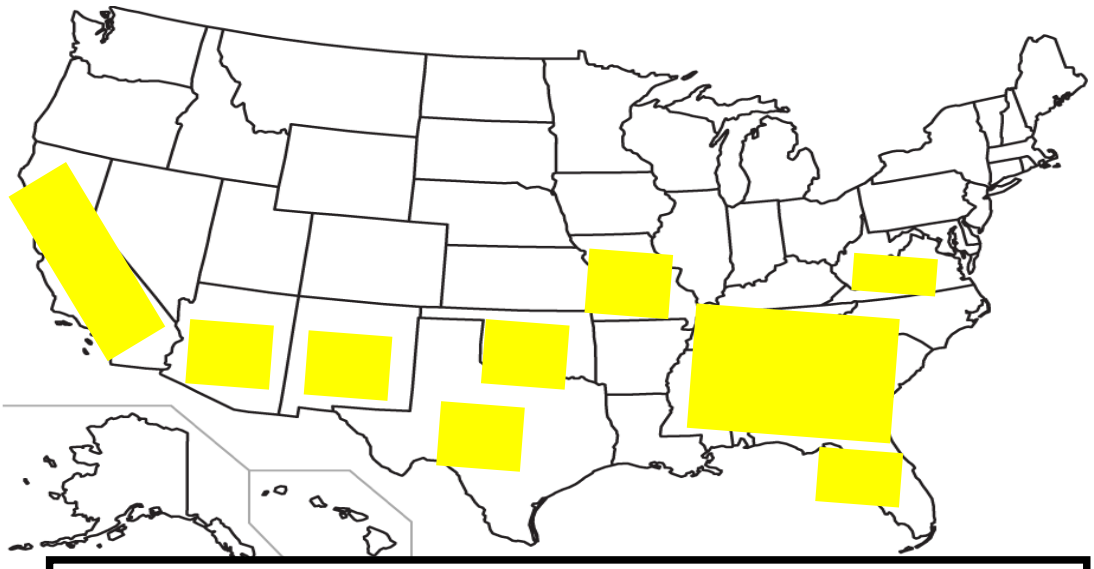
2. Why can cotton not be grown in certain climates?
Because the climate is not warm enough.



3. What is the average yield for cotton?
1 1/3 bales per acres and about 1,078 pounds of seed.

What does yield mean?
To produce or provide

4. What countries grow most of the world's cotton?
U.S., Uzbekistan, the People's Republic of China and India.



Color the states/region where cotton is produced in the United States.
Alabama, Arizona, Arkansas, California, Georgia, Louisiana, Mississippi, Missouri, New Mexico, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Florida, Kansas, Virginia

NAME: _____

Aligned to the following standards:
FFA.PL-A.; FFA.PL-C.; FFA.PL-D.; FFA.PL-E.;FFA.PG-J.; FFA.CS-M.; FFA.CS-N.; FFA.CS-O; CCSS.ELA.RI.9.10.2; CCSS.RI.9-10.4; CCSS.W.9-10.2; CCSS.W.9-10.4; CCSS.SL.9-10.4; CRP.02; CRP.04; CCSS.ELA.WHST.9.10.4; AFNR Career Cluster, Statement 3; MP2; MP6

KEY — Appendix 6: Talking Points: Food Waste

Created: Summer 2019 by the National FFA Organization

Part 1

DIRECTIONS:
Read "Talking Points: Food Waste" in the Summer 2019 issue of *FFA New Horizons.* Answer the questions below.

1. How much does the average American family throw away?
25 percent of the food and beverages it purchases

2. How much does this cost the family annually?
This costs the family around $1,600 annually.





3. Between 125 and 260 billion pounds of food are left uneaten in the ___U.S._____ every year — ___76__ billion of that is due to __household__ waste.

4. What is the No. 1 contributor to landfills?
Food waste

This takes up 21 percent of all landfill content each year.

5. Food waste is hard to break down. Because of this, it is responsible for at least _____ percent of all U.S. greenhouse gas emissions.

A. 5
B. 5.2
C. 2.8
D. 2.6



6. The land used to grow uneaten food makes up about 18 to 28 percent of total U.S. cropland (more than the entire state of New Mexico).

7. What are farmers doing to help the food waste issue?
Farmers have cut back on food waste by using unsold produce as feed or compost. Others have donated unused food.

