

HOW TO



STEAM INTO AGRICULTURE:

**A GUIDE TO DESIGNING A
SCHOOL WIDE STEAM EVENT**

A PUBLICATION OF THE ARIZONA FARM BUREAU



The Steam into Agriculture Event was a partnership between the Arizona Farm Bureau Ag in the Classroom Program and Gateway Polytechnic Academy (a Queen Creek Public School).



Gateway Polytechnic Academy
Queen Creek Unified School District

The school-wide curriculum focus included lessons, classroom presentations, pen pal programs with local farmers and other Ag industry professionals, Skype Sessions, field trips, a school garden, and a student showcase event. Every student in the school experienced agriculture through a variety of mediums during this 6-week long event. Over 600 people attended the Steam into Agriculture Parent Night and were served a BBQ Dinner. This guide was put together to help other schools replicate this successful program.

Community Partners



**COLLEGE OF AGRICULTURE
AND LIFE SCIENCES**
COOPERATIVE EXTENSION



Bee Man- Dave Peterson

Tractor Man- Jason Perry

Tire Man- Justin Perry

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THE GPA STORY



Gateway Polytechnic Academy (GPA) is a Pre-K through 6th Grade Public School located in the Queen Creek Unified School District in Queen Creek, Arizona. The school will expand to a Pre-K through 8th Grade Campus by the 2017-2018 School Year. GPA is the district STEAM school. STEAM stands for Science, Technology, Engineering, Art, and Mathematics. Construction began in May of 2015 and the first Tower was completed July 2015 for the first day of school. (On a side note: this was the fastest brick and mortar school building constructed in Arizona's history.) The school year began without computers, copiers or an Internet connection! Teachers went "old school" and survived without much technology until October. Construction was finally complete December 2015. As the buildings were growing so were the student enrollment numbers. A school that began with 300 students quickly rose to 650 enrolled students.

The staff for the school was hand selected and is comprised of 10 district transfer teachers and 14 teachers hired from out of district. GPA provides one-to-one tablets for student use and the teachers pride themselves on integrating STEAM into the core curriculum. As part of the STEAM program, the school takes on a new focus each semester. This technique allows students to gain experience and exposure to a variety of topics and careers. GPA's first STEAM Event focused on astronomy. Each grade level studied a different aspect of space. Sarahbeth Belvado, a Special Education Teacher at GPA, had her students compare how food is grown around the world to how it is grown at the Space Station. "I tied in the farm land surrounding our school and spoke about all the hats a farmer must wear (skills) to run a successful operation," said Belvado. "The interest my students showed in this project and the excitement they showed for learning, encouraged me to present the idea to our Principal about doing a STEAM project on agriculture the following semester." The Principal agreed. Belvado's past experience working with Arizona Farm Bureau's Ag in the Classroom (AITC) Program encouraged her to contact Katie Aikins with the Arizona Farm Bureau Agriculture in the Classroom (AITC) Program to help make this idea a reality.

Belvado's idea of classroom pen pals and a school garden quickly expanded to something bigger as teacher's caught wind of the idea. With the contacts and resources the Farm Bureau had, Belvado and Aikins were able to outline a semester long plan that would encompass all learning subjects,

technologies and even field trips! This semester project would also be completed with a family night component.

Step 1 was organizing a Professional Development. To make the project a success, there would need to be teacher buy-in and support. If the project was made easy for teachers they would be more likely to follow through with it. The professional development (PD) was led by the Farm Bureau AITC Program, Aikins, and the Lead Teacher on the project, Belvado. The PD covered the full spectrum of ideas that had been generated and a streamline process. It was here that grade level teams selected commodities and an area of focus for their grade level project. A timeline for the project was also set at this time to identify start times, deadlines and completion dates.

STEAM into Agriculture at *GPA*

Grade level Topics

Pre-School	<u>Parts of a Plant (the parts we eat)</u>
Kindergarten	<u>Pollination and Pollinators (Life Cycles and Function)</u>
1 st Grade	<u>Decomposers (millipedes, pill bugs and worms/ habitats and life cycles)</u>
2 nd Grade	<u>Greenhouses (structure, function, etc)</u>
3 rd Grade	<u>Pigs (Literature Review with Charlotte's Web _____, compare fictional farm to real life farm)</u>
4 th Grade	<u>Drones and Ag Technology (Now and Then)</u>
5 th Grade	<u>Poultry (anatomy as it relates to humans, embryology, life cycle, etc.)</u>
6 th Grade	<u>Hydroponics (different systems, plant growth, etc.)</u>

Timeline

January 15 th	Producer Pen Pals confirmed by AITC
January 22 nd	1 st set of letters written to Producer Pen Pal and delivered to Lead Teacher
February 3 rd	1 st letter from Producer Pen Pal is received via email to classroom teachers
February 10 th	2 nd set of letters written to Producer Pen Pal and delivered to Lead Teacher
February 19 th	SKYPE with Producer Pen Pal for any follow-up questions
February 28 th	STEAM into Agriculture Event

Step 2 was starting the process for the School Garden. The Farm Bureau directed Belvado on where to find grants and Belvado went to work filling out forms and writing the paperwork. Prior to starting the school garden, a plan had to be submitted to the District's Facilities Manager to ensure the garden would not interfere with expansion plans or current plumbing and electric lines. Belvado also began soliciting parents for material donations. In the meantime, Aikins was able to secure old tractor tires from a local farmer. The tires were delivered to the school and set in place by the farmer with the help of a teacher. Farm dirt was donated by another local farmer. The local A & P Nursery donated the planting mulch and seeds for the garden. A local lumber yard donated wood and the local High School FFA Program constructed garden boxes. Once the paint, containers, dirt, mulch and seeds were donated it was time for the manual labor. All the pieces needed to be put together. This is where the students came in. Two students from each grade level prek-6th grade were selected to come help paint and fill the boxes/tires with dirt and mulch. Once the containers were dried and filled, each grade level was responsible for planting their own space. The students had to determine the area of the planting container as well as depth of seed placement for planting. As the lead teacher on the project, Belvado, oversaw the planting and kept grade levels on track for planting and harvesting. Belvado also took on the daily watering and maintenance of the garden selecting groups of students to assist. Shortly after the completion of the garden, the school received word that it was selected as a grant recipient. The money received from the grant will be used to add additional garden beds, a watering system, a fence, gardening tools, and a compost bin.



6 Tractor Tires were donated by a local Farmer to be used as the planting beds.



Farm dirt was donated by another local farmer from his field. He delivered the dirt to the school.



Students painted the garden tires



Students filled and planted the containers



Some class sessions were held outside at the garden

Step 3 With the garden up and running, it was time to turn the attention to the Pen Pal Program to be sure that we met the deadlines. Emails were sent to teachers to remind them of the nearing pen pal letter deadline. Once all the letters were received, Belvado scanned them in and emailed them to Aikins who then forwarded them via email to the producer pals. The emailing of letters helped eliminate any district mail issues or the delay from sending them across the state. Aikins kept track of the producer pals and made sure the return letter deadline was met. The letters and pictures were then forwarded via email to Belvado, who passed them along to the grade level teachers.

As the project progressed, it was revealed just how important it was to have a lead teacher on the project. Belvado was always sure to send out gentle reminders of approaching deadlines and reminders that the Farm Bureau was there to help. This approach was used for each of the pen pal letter deadlines.

Step 4 Arrangements were made for the Skype Event that would be held at the end of the semester once classes had 2 correspondences with their producer pals. The school did not have webcams or Skype on the school computers so Belvado worked with the District Tech Department and made arrangements for 2 equipped computers to be set up in empty classrooms. Aikins and Belvado worked together to schedule the teachers and producer pals for their Skype time. The schedule that was created allowed each grade level to skype for a 30 minute block of time. On the day of the skype session Belvado had to run between the rooms to start each skype session and check in to ensure the session was staying within the given time frame. The younger grades skype sessions typically ran 20 minutes as they had a harder time sitting still and focusing on the speaker. The older grades ran the full 30 minutes as they asked great follow up questions and dove deeper into the subject they were studying.



Tour of the green house



Live feed from Drones

Step 5 As the RSVPs for the event began nearing 600, the idea was brought up that the event should be publicized so that the community could see the great things the school was doing. The Queen Creek School District PR Director wrote a Press Release and story and sent it to the local papers and posted it on the school and district Facebook pages. The Farm Bureau also had their PR Director compose a Press Release that was sent to all area news outlets. The hope was to have some news coverage at the event, but at the last minute a higher priority news story pulled the News Crew from the event.

Step 6 Throughout the 6-week curriculum event, Belvado and Aikins worked to get donations for food, supplies, and solicit other vendors to attend the Family Night. Something to keep in mind when you are planning your event, some companies such as Costco, WinCo, Bashas, Target, Walmart, and Fry's all needed 6-8 weeks' notice prior to donations being given through either straight donation of product or a gift card. The event fell short of this time frame and so the school's PTO was asked to donate \$330 to cover hamburgers and buns. The Arizona Pork Producers donated the hotdogs, another local meat shop (The Pork Shop) donated 100 bratwurst, Farm Bureau Financial Services donated the water, chips, pickles, grill and people to run the grill, and a local construction company donated the tower lights. Plates, napkins and utensils were donated by individual donors. Arrangements were also made to have the local FFA Chapter serve the food.

Aikins worked with industry groups and local farmers to secure booths for the Steam Family Night. The Arizona Beef Council attended with an interactive booth, Danzeisen Dairy attended and gave out samples of their flavored milk, Scooptacular Ice Cream attended and handed out ice cream samples, a local farmer brought one of his tractors and interacted with individuals throughout the evening, the local 4-H Club came and taught kids how to rope and taught students all about dairy goats, and a Farm Bureau Insurance Agent also attended with an interactive booth. Sharman Hickman of Hickman's Family Farms also attended the event with their mascot Funky.

Teachers were asked to attend the event and received professional development hours for their participation in passing out food tickets, set up, take down, and help as needed throughout the event.

Step 7 To set-up on the afternoon of the Family Event arrangements were made to have the afterschool care program kids set up tables (from the cafeteria) and place trash cans. The grill and volunteers arrived 2 hours prior to the event to start cooking brauts, hotdogs, and hamburgers. The food was then wrapped in foil and kept in a warmer so that the food line did not get too backed up. Other community businesses and producers arrived and started setting up booths and activities. Teachers worked quickly to set up their classroom displays to showcase to parents the projects their students had been working on the past 6-weeks. Displays included reports of how technology has improved agriculture production throughout history, model green houses, functioning hydroponic units, plant experiment using typical potting soil versus soil from decomposers, art projects involving parts of a plant and pollinators, pig pen models, and the chicks hatched by our 5th grade classes. Families started arriving at 5pm and the event was off and running!

With help from Arizona Farm Bureau Ag in the Classroom program, local producers, community partners, teachers, and students our STEAM into Agriculture event was a hit! Over 800 meals were served and fun was had by all. Families were astounded by the community support and loved that we brought the farm land surrounding the school into the classroom.



STEAM into Agriculture!



Please join us as we highlight the wonderful world of agriculture through our school-wide **STEAM EVENT!** Students at each grade level have spent the last quarter learning about agriculture and are excited to share what they have learned through their classroom lessons, pen pal letters and Skype sessions with Arizona farmers!

Tour our new SCHOOL GARDEN and see how community donations and our work with the Arizona Farm Bureau will continue our students learning experiences long into the future. **Sit inside real FARM EQUIPMENT** and experience the technology that is being used in agriculture today. Meet with **Hickman's Chicken, FUNKY,** for some fun photo opportunities. Lots of other educational activities will be available!

WHEN: Thursday, February 25, 2016

TIME: 5:30pm-7:00pm

WHERE: Gateway Polytechnic Academy's School Garden

Join us for a **FREE BBQ Dinner**



Student Name: _____

Teacher Name: _____

Names of others attending: _____

of Hot Dog Meals: _____ # of Hamburger Meals: _____

Please return to your student's classroom teacher February 5th

The BBQ Diner will be cooked and served by

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FOR IMMEDIATE RELEASE

STEAM into Agriculture a Huge Success

MESA, February 26, 2016 --- An estimated 800 parents, children, and educators came out for Gateway Polytechnic Academy's first-ever *STEAM into Agriculture Night* Thursday evening, celebrating a quarter-long curriculum that had students focusing on agriculture in their classrooms. Arizona Farm Bureau's Ag in the Classroom (AITC) helped spearhead the educational curriculum and event.

Designed for a family night out with a free meal, Gateway Polytechnic Academy's students demonstrated their achievements during the three-hour event. For the past three months, students used agriculture, from pigs to flowers to drones, as the foundation to meet their state learning standard requirements. Each grade level selected an area within agriculture that interested them. From there, they were provided lessons and materials by Arizona Farm Bureau's AITC and paired with a local Arizona farmers or businesses to Pen Pal and Skype with students. Classes also attended field trips to local nurseries and the Phoenix Zoo and received classroom presentations and instruction from AITC and their producer pals.

"Queen Creek Unified School District is incredibly fortunate to have such a diversity of resources at Gateway Polytechnic Academy," said QCUSD Superintendent Dr. Perry Berry. "The STEAM into Agriculture event is an engaging way for the community to learn about our partnership with Arizona Farm Bureau and the wealth of opportunities offered at GPA for their children."

Arizona Farm Bureau AITC also worked with local producers to construct a school garden. Local grower Jason Perry donated the planting dirt and Justin Perry donated the tractor tires for planting. A&P Nursery donated the mulch for the growing medium. Students participated in painting the tires, filling the tires and planting in the tires.

The STEAM into Agriculture Night allowed students to show off their projects and what they learned to family and other community members. Hot dogs were provided by the Pork Council, the Pork Shop donated bratwurst and Farm Bureau Financial Services donated water, chips, and pickles and cooked the meals on the Farm Bureau grill. There were 816 meals served at the event.

Local Bee Man and Producer Pen Pal, Dave Petersen, attended the event and talked bees with participants. Jason Perry brought his newest tractor for attendees to see the technology that is used every day on the farm. Also, in attendance were Danzeisen Dairy handing out samples of their now-famous flavored milk. Additionally, Nindi Wadhwa of Scooptacular ice cream provided attendees with ice cream samples. Beef Council was in attendance teaching about the different cuts of meat. Queen Creek 4-H provided a goat petting zoo and roping station. Hickman's Family Farms attended with Funky!

Attendees included teachers, students, parent and school district staff.

The Arizona Farm Bureau is a non-profit organization that represents the interests of the state's \$17.1 billion agriculture industry.

About Arizona Farm Bureau  **Arizona Farm Bureau®**

The Arizona Farm Bureau is a grassroots organization dedicated to preserving and improving the Arizona agriculture industry through member involvement in education, political activities, programs and services. As a member services organization, individuals can become a member by contacting the Farm Bureau. Go to www.azfb.org to learn more.

Special Note: Additional photos available upon request.

Farm Bureau Partners with local school to STEAM into Ag

By **Katie Aikins**, Arizona Farm Bureau Ag Education Associate Director

Arizona Farm Bureau's Ag in the classroom Program (AIRC) recently partnered with Gateway Polytechnic Academy (GPA), a Queen Creek Public Elementary School, to teach students about agriculture. A project that started with a simple conversation between a teacher and AIRC about a school garden, turned into a multi-month project that brought agriculture to not only every classroom but a community. Each semester, GPA teachers and students focus their studies on a specific topic; something that will bring STEAM (science, technology, engineering, arts and math) into their classroom. Last semester it was space. This semester is agriculture.

Preschool through 6th grade at GPA selected an area within agriculture to focus their studies. Farm Bureau AIRC directed teachers and provided the classrooms with lessons, resources and materials. In addition, AIRC also coordinated a pen pal for each grade level to correspond with over the 6-week-long project. At the end of the project, classes were able to Skype and have visits from their pen pals. Some classes even got to take a field trip to see their pen pal. To keep the students' love of agriculture growing, Farm Bureau coordinated with local donors Justin Perry, Jason Perry and A&P Nursery (Queen Creek) to provide the school with materials for a school tire garden. Part of the student activities included painting, filling, planting, watering and maintaining the garden. Students continue to work in the garden each day and become more and more excited with every inch their crops grow.

Participating Pen Pals

- Lindsay Statler (Flowers/parts of a plant)
- Dave Petersen (bees and pollination)
- Mark Loghry (greenhouses)
- Marguerite Tan (Swine)
- Kurt Knolte (Precision Ag/Drones)
- Sharman Hickman (Poultry and Eggs)
- Nature Sweet (hydroponics)

In-Kind Sponsors

- A&P Nursery – Queen Creek
- Arizona Farm Bureau AIRC
- Arizona Beef Council
- Arizona Pork Council
- Blacorp Construction
- Danzeisen Dairy
- Farm Bureau Financial Services
- Jason Perry
- Justin Perry
- The Pork Shop
- Scooptacular Ice Cream Shop
- Queen Creek 4-H

This curriculum project was celebrated last month with a school-wide event that invited parents to see what their students had been learning. In addition to student projects, parents and students were also able to learn even more about agriculture from activities provided by AIRC, Arizona Beef Council, Farm Bureau Financial Services and Queen Creek 4-H. Local farmer, Jason Perry was also in attendance to interact with attendees. Over 800 BBQ meals were served up by Farm Bureau Financial Services and Highland FFA Members on the Farm Bureau Grill. Attendees then sampled dessert from Scooptacular Ice Cream Shop and delicious flavored milk from Danzeisen Dairy.

"Queen Creek Unified School District is incredibly fortunate to have such a diversity of resources at Gateway Polytechnic Academy," said QCUSD Superintendent Dr. Perry Berry. "The STEAM into Agriculture event is an engaging way for the community to learn about our partnership with Arizona Farm Bureau and the wealth of opportunities offered at GPA for their children."

Turns out pigs, poultry, pollinators, hydroponics, greenhouses, decomposers, and plant parts have a way of getting people involved. 🐷

GPA Teacher Sarahbeth Belvado and GPA Principal Mr. Shultz are all smiles with AIRC's Katie Aikins at the STEAM Event that drew an estimated 800 students and parents from the school and community. Hickman's very own Funky was even in attendance.



Arizona Farm Bureau Member and local producer, Jason Perry brought out one of his tractors to show students and parents about the technology being used in agriculture today.

Farm Bureau Financial services grilled up 300 hotdogs, 400 hamburgers and 100 bratwursts for families to enjoy.



A student from GPA paints one of the tires for the school garden.



\$500 Bonus For Arizona Farm Bureau Members



Speed Bumps and Set Backs There were plenty of setbacks and speedbumps that had to be overcome for the event to be a success. As one might imagine, not every teacher was 100% on board with the project. Teacher follow-through was sometimes a problem. There were the usual technology glitches. The donation deadlines for stores caused some heartache. However, having a lead teacher and the support of the Farm Bureau the event came together and was a huge success. In fact, it was attended by the Superintendent and Board Members and Belvado and Aikins were recognized at the School Board Meeting for their work.

**INSERT PEN PAL LETTERS
(15 PAGES)**

**INSERT AITC STATE
CONTACT LIST PAGE 1**

**INSERT AITC STATE
CONTACT LIST PAGE 2**

**INSERT AITC STATE
CONTACT LIST PAGE 3**

HOW TO SCHEDULE AND RUN A PROFESSIONAL DEVELOPMENT

- 1) Meet with your State AITC Contact to discuss partnership and resources available for a Professional Development.
- 2) Develop an agenda for the meeting. What will be discussed? How long will the meeting take? What supplies/handouts will you need?
- 3) Present the idea and agenda to your building administrator and schedule a staff meeting with the building secretary.
- 4) Set up the room the day of the professional development to display resources and have copies of timeline and other handouts for each teacher as they walk in.
- 5) Talk about the end result and discuss the steps to get there in the form of a timeline. Discuss all the resources briefly to showcase how easy the process is and assure the teachers they don't need to reinvent the wheel. Have the AITC State Contact available to discuss resources and answer questions.
- 6) Have staff members select their topic of study at the meeting so you can begin collecting resources with the state AITC contact.

AGRICULTURE CURRICULUM IDEAS

It is important to provide teachers with ideas for classroom projects. Work with the local Farm Bureau or AITC contact to see what resources are available to teachers. It makes an easier time for the teacher if there are already resources (books, posters, lesson plans, and materials) available. No teacher wants to recreate the wheel or have to develop projects/curriculum regarding something they themselves might not be familiar with. Be sure to refer teachers to the internet. Visit the National Ag in the Classroom Curriculum Matrix <http://www.agclassroom.org/teacher/matrix/> and other State Ag in the Classroom Websites. Many programs offer free resources to teachers! Google will be your friend! Here are some examples of ideas for areas of study and materials available. Again, check out the AITC webpages for additional topics and resources.

- Soil
 - Decomposers
 - Habitats
 - Life cycles
 - Experiment with plant growth in different soils
 - Soil Layers
 - Soil Nutrients
 - FREE resources from Nutrients for Life <https://www.nutrientsforlife.org/>
 - Soil Ag Magazine
http://www.agintheclassroom.org/TeacherResources/AgMags/Interactive_soil_agmag.pdf
- Plants
 - Parts of a plant
 - Pollination
 - Life Cycles
 - Photosynthesis
 - Specialty Crops
 - Hydroponics / Greenhouses
 - Aquaponics
 - Breeding techniques
 - Self Fertilizing

- Cross pollinations
 - Marker Assisted Breeding
 - Biotechnology
- Ag Mags: Apple, Pumpkin, Corn, Specialty Crops, Pumpkin, Soybean, Horticulture, Tree available at <http://www.agintheclassroom.org/TeacherResources/AgMags.shtml>
- Arizona Fruit and Veggies Ag Mag <http://qaaz.insidefb.com/f/14a840c6-aba3-4506-bda5-9f60ef5cb16d/ag-mag-2015-web>
- Ag Technologies
 - Biotechnology
 - Precision Agriculture
 - Drones
 - GPS
 - Field Mapping
 - How technologies have impacted farming/consumers
 - Tractors
 - Packaging
 - Robots
- Animals (poultry, pigs, fish, beef cattle, dairy cattle, sheep and goats)
 - Embryology/ life cycles
- Ag Careers

FINDING COMMUNITY PARTNERS

There are people within your own community that will be your best resource! Get the word about what you are doing and there will be people jumping at the opportunity to help you. Be sure to reach out to your local Farm Bureau or University Cooperative Extension Office. These two places are full of resources pertaining to agriculture. They will be able to help you get in contact with local agribusinesses, farmers, and ranchers. Many times, these two organizations can also provide you with presentations or trainings. When working on an agricultural curriculum or project be sure to reach out to:

- State Ag in the Classroom Program
- County or State Farm Bureau
- Local Cooperative Extension Office
- State Dairy Council
- State Beef Council
- State Pork producers
- Farm Bureau Insurance Company and Agents
- Local banks
- Local grocers
- Local meat shops
- Local agritourism locations
- Local construction companies
- Local dentists
- Local farms or other ag operations
- Local Nursery
- Parents (Many are specialists in their areas)
- Hardware Stores
- Water and Electric Companies (grants or curriculum)
- Local Restaurants and Shops
- Tractor Supply Store

FINDING PEN PALS AND MANAGING THE PROGRAM

There are many individuals that can serve as a Pen Pal for your students. Be sure to check with your local or State Farm Bureau. This organization will be instrumental in setting you up with farmers, ranchers and other agribusiness members. You can also reach out to your local Cooperative Extension Office for help and ideas. Here are some suggestions for great pen pals:

- Bee Keepers
- Dairy Farmer
- Rancher
- Farmer
 - Vegetable
 - Cotton
 - Citrus
 - Grains
 - Pistachios/Pecans/Almonds/Peanuts/Beans
 - Soybeans
 - Fish
 - Grapes (Wine or table)
 - Fruit Grower
 - Algae Farmer
- Drone Pilot
- Aerial Applicator
- Local Greenhouse Company or Producer
- Entomologist
- Veterinarian
- Animal Nutritionist
- Feed Lot / Feed Yard
- Vineyard
- Local Plant Nursery

Once you have your Pen Pals lined up you will need to answer a few questions to make sure the program is successful.

- Be sure that you have a timeline in place
 - When will the program begin?
 - When will letters be sent by the class?
 - When will letters be sent by the producer?
 - How many correspondences will there be?
- How will your letters be written?
 - Will the students hand write letters?
 - Will students type letters in a word document?
 - Will the class brainstorm 10 questions and then each student picks 4-5?
 - Will the students come up with their own questions?
- How will your letter be sent?
 - Will they be mailed via snail mail
 - Will they be typed and then emailed?
 - Will they be hand written and scanned in so they can be emailed?
- Do you have someone designated to scan letters or email letters? Or will each teacher be responsible for their own class?

If you work with your local Farm Bureau, they might be willing to be the point person to get letters to and from the producers. Then you would just need 1 teacher to be the campus lead to assure that teachers are getting letters finished and out with the deadlines. If this portion of the Pen Pal Program is not managed well, you might have classes and producers that never send or receive letters.

WHERE IS THE MONEY?

It might seem a bit overwhelming when you first take on the project of developing a Steam into Agriculture Event. There are so many things that must be outlined, organized, and put in place. After all the ideas are put on paper the real work begins. Where are you going to get the money to pay for this project? Take a deep breath, there is more money and resources out there than you will even know what to do with!

The best place to look for funding is through organizations and businesses that you do business with. The second place is the local businesses in your community. The third place to look if you are doing an agricultural event/curriculum is the agricultural community:

- Farm Bureau
- Farm Bureau Insurance Company
- Beef Council
- Dairy Council
- Pork Council
- Ag Chemical Companies
- Ag Seed Companies
- Tractor Supply Stores

The first 3 options typically will not require a lengthy grant process, but rather a short letter and/or a personal visit requesting funds. Another option that might require a little more work on your part is securing funding through local, state and national grants. Be sure to jump on the Internet and search for any funding opportunities that are out there. Many organizations have regular grant cycles that you can take advantage of. Some examples include:

- American Farm Bureau White Reinhardt Grants (\$500 mini grants. 2 cycles each year. Fall and Spring. <http://www.agfoundation.org/projects/mini-grants-home>
- Western Growers <http://www.csgn.org/grants> (\$500 mini grants)
- Whole Kids Foundation <https://www.wholekidsfoundation.org/health-kids-innovation>
Due October.
- Home Depot and Kids Gardening <http://grants.kidsgardening.org/>
- Fuel up to Play 60 <https://www.fueluptoplay60.com/funding/general-information>
- Jamba Juice <http://grants.kidsgardening.org/spring-2015-jamba-juice-its-all-about-fruit-and-veggies-garden-grant>

HOW TO WRITE A GRANT

Agree on The Problem

To receive funding for a proposal or grant, the reader must be convinced that funding your program or project will have a positive and measurable affect on your students/community.

Start by identifying the need. What problem or issue in your community can be improved or changed with the grant money and a great effort on the part of the grant recipient? Some examples for a STEAM into Agriculture Event might be:

- Only 2% of our population today is involved in production agriculture.
- The population today is 3-4 generations removed from the farm and ranch. We do not have first hand knowledge or experience with how our food is being produced and where it is coming from.
- It is predicted that we will have over 10 billion people on our planet by the year 2050. The average age of our producers is 57 years old. We need to get young people interested and experience in agriculture.

Describe What You Hope To Acheive

You have described a problem and identified likely causes. Now it is time to focus on a solution or a desired outcome for your proposed project/activity. What will occur as a result of your project? How will your project influence the problem? If your project is to teach people about where the food comes from or interest them in agriculture as a career, will your students make educated decisions about food? Will they try different fruits and vegetables if they participated in growing and harvesting them?

Outputs are measures of a programs' activities. Outcomes are changes that result from your activities. Be sure not to confuse the two of these. Outputs matter because they lead to outcomes. Be sure to identify your key outcomes. Some projects will have a long list of outcomes. Here are some outcomes that might result from a STEAM into Agriculture Event:

- Students become aware of the multitudine of careers in agricultre.
- Students will increase their knowledge about where their food comes from.
- Students will eat more fruits and vegetables in the cafeteria.

Be sure to set realistic outcomes. There will always be more information to learn about where your food comes from. There will always be students who will not eat fruits and vegetables. It is better to promise less and deliver more than to overpromise and underperform. Be sure to not underpromise too much as the project may not appear cost-effective.

Set a timeline. What are your outcomes and when do you hope to achieve them? Be sure to identify specific measurable outcomes. What is the number you are reaching for? How will you measure it?

- Pre-test / post-test to identify food production knowledge
- Number of vegetables requested in the cafeteria
- Amount of vegetables not thrown away during lunch

Design Your Program

Now that you know where you are and where you want to go, the next step is figuring out how you are going to get there. How do you know what the best step is for you? Get opinions from administration, teachers and AITC staff. Research what others have done. You can use the Arizona AITC and GPA Event as a guide. Be sure you get “buy in” from key players. This will include administration, teachers, AITC Staff, school custodian, school PTO/PTSO, District Board Members, etc.

Locate Funding Sources

Now that you know why and how you are doing the program, it is time to find the resources! This includes, the people, the curriculum resources, the equipment and the money to get your project done. Locating funding takes time and smarts. Start with the organizations and the people you know:

- PTO/PTSO
- Parent Population (send out specific requests via school facebook page)

Then look to local businesses for materials, supplies or funding:

- Local grocery stores (most need 6 months advance to donate product)
- Bank
- Feed Store
- Insurance Agents
- Restaurants
- Home Improvement Stores

Be sure to reach out to your State and Local Farm Organizations if you are doing an agricultural theme:

- Farm Bureau

- Farm Bureau Insurance Company
- Beef Council
- Dairy Council
- Pork Council
- Ag Chemical Companies
- Ag Seed Companies
- Tractor Supply Stores

Write Your Proposal

Some grants and funding sources require that you follow a particular set of rules, guidelines or application. Be certain to follow the format and provide all the information that is being asked. Study the criteria and make an application checklist for the grant if one is not provided for you. Always have someone else proof your work for spelling, grammatical errors, fluency and to double-check that you have included all necessary information and documents. Lastly, be sure to adhere strictly to the deadlines that you have been provided.

HOW TO START A SCHOOL GARDEN

Step 1 Identify the purpose or theme of your garden. Example: History garden, butterfly garden, ecosystem garden, heritage garden, nutrition garden, etc.

Step 2 Who will be responsible for the garden? The garden leader may be a school Principal, an experienced teacher, or an experienced person from the community (even parent). Who will be responsible for constructing and maintaining the garden once students start planting?

Step 3 How big will your garden be? Your garden can be anything from a tractor tire, to a 6ft planting box, to large flower pots. The size will depend upon the space you have available. Size also depends on the purpose of your garden. If your main objective is education, it will not matter how much space you have. A single garden bed will produce token amounts of food. Do you want a box for each grade level to use along with their curriculum? Do you want the garden to be for beautification?

Step 4 There are lots of things to consider when selecting the location for your school garden.

- **Sunlight**-most flowers need a minimum of 6 hours of full sun. Be sure to check your potential garden site at different times of the day in the different seasons to be sure adequate sun and shade are provided.
- **Water**-Watering the garden is very important. The garden should be close to a water source. How will you get water to your garden? A drip system, hand water, irrigation, ect?
- **Drainage**-How is water drainage in the area? Both soil type and slopes affect water drainage. Don't plan to put a garden in places where puddles form.
- **Accessibility**-How accessible is your garden? Is it a long walk from the classes? Does it require keys to get through gates?

Step 5 What type of garden bed will you use? Examples include tractor tires, raised beds, in the ground, hydroponic units, vertical gardens, greenhouses, etc.

Step 6 What tools are you going to need? Examples: hoses, trowels, shovels, pruning shears, gloves, compost bin, wheel barrows, harvest baskets, tool shed, clip boards, rain gauge, soil, seeds, fencing, etc. How are you going to purchase these? Parent donations, grant dollars, PTO, etc.

Step 5 Obtain permission from your building administrator.

- Show them your plan and discuss possible placement of the garden

Step 6 Seek out funding for your garden and purchase supplies

- Ask local businesses for donations. Nurseries, lumber companies, local farmers, garden clubs, and individuals who are experts in their area such as weather man, bee keeper, etc. who can work on special projects with students.
- Federal funds through U.S department of Education such as Nutrition Education, Waste Reduction, and Watershed education.
- Organizations providing grants for school gardens. The National Gardening Association (<http://grants.kidsgardening.org/>) or Visit <http://www.gardenabcs.com/grants.html> for a list of over 50 grant opportunities.

Step 7 Prepare the garden site.

- Stake out the bed placement. If planting directly in the ground you will need to cultivate the land to work in mulch.
- Place garden beds and add soil.
- Establish a compost pile/bin

Step 8 Determine what plants are ready for planting depending upon the growing season you are in for your region.

- Plant your seeds or plants.

Step 9 Maintain your garden

- Water plants as needed
- Protect from pests and harsh weather
- Maintain compost pile/bin
- Prune plants
- Harvest crops

Step 10 Manage the garden

- Schedule classes to us the outdoor classroom (buddy classes, team teaching, cooperative learning)
- Develop a work schedule for volunteers
- Plan holiday and summer maintenance schedule
- Create a supply ordering system to replenish items as needed
- Create and post garden rules (Examples: always walk in the garden, stay on the path, ask before using tools or harvesting crops, respect the plants, animals, and each other, proper way to use tools, ect.)

HOW TO DESIGN A STEAM FAMILY NIGHT

The first question you want to ask yourself is, how big do you want this event to be? Do you want to serve food? Do you want activities outside of the class projects for attendees to see and do? Once you know this information you can get started.

Step 1 Set a date for the event. Be sure the date does not conflict with any other School, District or Community Events. Also look at the week surrounding your selected date. Are there other things planned at the school (reading night, fun runs, etc) that week that will make your parents have to choose which event they are going to attend?

Step 2 Set a time for the event. An ideal time is 1 ½ to 2 hours. This allows parents some flexibility for arrival time but gives the kids enough time to play. If you are serving an evening meal be sure to consider what time it gets dark. This may require that you provide lighting!

Step 3 Where are you going to hold the event? Will it be inside the cafeteria? Will all of the booths and classroom projects be together or will the class projects be set up in the hallways? Or maybe you will hold the event outside in a breezeway, open area or ball fields? If you have the event outside near the playground it will provide another activity to entertain the kids.

Step 4 Contact outside organizations and invite them to have a booth at your event. Think of organizations that will relate to your topic. If you have done an agriculture theme think of inviting:

- State or local AITC Contact
- Local or State Farm Bureau
- State Pork Producers
- State Beef Producers
- Local Cow Bells
- State Dairy Council
- State Nursery Association
- Local FFA Chapter
- Local 4-H Club (petting zoo)
- Local retail stores that provide niche or direct market ag products
 - Dairy with flavored milk
 - Local Ice Cream Shop (milk comes from cows☺)
 - Cheese Samples

Even if the organization cannot attend the event, they may be willing to donate giveaways for students.

Step 4 If you are serving food, where is it going to come from? What will you be serving? Who is going to do the cooking? Serving?

- If you are serving food you will want get an **RSVP** from parents with the number of people that will be in their party. You do not want to run out of food but you also don't want to have a ton of food left!
- Keep the food choices simple and too a minimum.
- Lign up a group to do the cooking (experience with food handling and cooking temps).
- Have office staff (they typically know a lot of the parents and students) run the check-in table at the event. Compile a list of those who have submitted an **RSVP** for the event. Have tickets for them to get their food. This will eliminate any walk-ins taking food and have a situtation where you run out of food for those who have submitted an **RSVP**.
- Ask the grade level teachers to work their project booths with students.

Step 5 If you are serving food, where are people going to eat? Be sure to arrange for tables/chairs. You can get a rental company to donate them, but that will usually require pick-up and delivery from someone. Eliminate the extra work and use the tables from the cafeteria!

Step 6 Decide how many volunteers you are going to need. Assign them jobs:

- Chairs
- Garbage can (set-up and monitoring during the event)
- Cooking food
- Serving food
- Check-in (if serving food)
- Students and teachers to showcase curriculum projects

Step 7 Be sure to publicize your event to the parents. If you are trying to create a large outside event where food is being served and outside organizations are coming in, be sure to advertise within your district and local community.

HOW TO PUBLICIZE YOUR EVENT

It is important to publicize your event and the work that your students are doing. The Steam Events are a positive activity that should be showcased to the community to allow parents and businesses to see the educational opportunities that students are receiving from your school. There are two different times to publicize your event: before and after.

Before: Be sure to include your upcoming event in your school newsletter, parent newsletters, and school and district social media outlets. You will want to include the *Who, What, Where, Why* and *When* of the event. If you would like to try and get media attention at your event, be sure to send to your local media outlets. You can always ask your District PR person for help!

After After you have done all of the work of this curriculum venture, don't be afraid to toot your own horn. Be sure you gather pictures throughout the course of the project and the event. Get quotes from key players and students to include in any release you might create.

STEAM into Agriculture at *<insert school>*

Grade level Topics

Pre-School _____

Kindergarten _____

1st Grade _____

2nd Grade _____

3rd Grade _____

4th Grade _____

5th Grade _____

6th Grade _____

Timeline

Producer Pen Pals confirmed by AITC

1st set of letters written to Producer Pen Pal and delivered to Lead Teacher

1st letter from Producer Pen Pal is received via email to classroom teachers

2nd set of letters written to Producer Pen Pal and delivered to Lead Teacher

SKYPE with Producer Pen Pal for any follow-up questions

STEAM into Agriculture Event

<Insert Partner organization logo>

CONTACT INFORMATION



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FOR IMMEDIATE RELEASE

HEADLINE



STEAM into Agriculture a Huge Success

MESA, February 26, 2016 --- An estimated 800 parents, children, and educators came out for Gateway Polytechnic Academy's first-ever *STEAM into Agriculture Night* Thursday evening, celebrating a quarter-long curriculum that had students focusing on agriculture in their classrooms. Arizona Farm Bureau's Ag in the Classroom (AITC) helped spearhead the educational curriculum and event.

LEAD



Designed for a family night out with a free meal, Gateway Polytechnic Academy's students demonstrated their achievements during the three-hour event. For the past three months, students used agriculture, from pigs to flowers to drones, as the foundation to meet their state learning standard requirements. Each grade level selected an area within agriculture that interested them. From there, they were provided lessons and materials by Arizona Farm Bureau's AITC and paired with a local Arizona farmers or businesses to Pen Pal and Skype with students. Classes also attended field trips to local nurseries and the Phoenix Zoo and received classroom presentations and instruction from AITC and their producer pals.

BODY



"Queen Creek Unified School District is incredibly fortunate to have such a diversity of resources at Gateway Polytechnic Academy," said QCUSD Superintendent Dr. Perry Berry. "The STEAM into Agriculture event is an engaging way for the community to learn about our partnership with Arizona Farm Bureau and the wealth of opportunities offered at GPA for their children."

Arizona Farm Bureau AITC also worked with local producers to construct a school garden. Local grower Jason Perry donated the planting dirt and Justin Perry donated the tractor tires for planting. A&P Nursery donated the mulch for the growing medium. Students participated in painting the tires, filling the tires and planting in the tires.

The STEAM into Agriculture Night allowed students to show off their projects and what they learned to family and other community members. Hot dogs were provided by the Pork Council, the Pork Shop donated bratwurst and Farm Bureau Financial Services donated water, chips, and pickles and cooked the meals on the Farm Bureau grill. There were 816 meals served at the event.

Local Bee Man and Producer Pen Pal, Dave Petersen, attended the event and talked bees with participants. Jason Perry brought his newest tractor for attendees to see the technology that is used every day on the farm. Also, in attendance were Danzeisen Dairy handing out samples of their now-famous flavored milk. Additionally, Nindi Wadhwa of Scooptacular ice cream provided attendees with ice cream samples. Beef Council was in attendance teaching about the different cuts of meat. Queen Creek 4-H provided a goat petting zoo and roping station. Hickman's Family Farms attended with Funky!

Attendees included teachers, students, parent and school district staff.

The Arizona Farm Bureau is a non-profit organization that represents the interests of the state's \$17.1 billion agriculture industry.

About Arizona Farm Bureau  **Arizona Farm Bureau®**

The Arizona Farm Bureau is a grassroots organization dedicated to preserving and improving the Arizona agriculture industry through member involvement in education, political activities, programs and services. As a member services organization, individuals can become a member by contacting the Farm Bureau. Go to www.azfb.org to learn more.

BOILERPOINT



Special Note: Additional photos available upon request.