

Dear Roger,

Congratulations! Your school district has been selected to receive a \$25,000.00 grant for Filling the Need for Agricultural Careers through America's Farmers Grow Rural Education, sponsored by Bayer Fund. Growing the next generation is very important to farmers, and they realize that you are an integral part of that process. To show their appreciation, farmers in your area nominated you to receive this grant. After your application was submitted, it was reviewed first by STEM teachers, then by the America's Farmers Grow Rural Education Farmer Advisory Council, a group of 27 prominent farmers from across the country. The Advisory Council was impressed with your dedication to your students and your innovative ideas for improving their educational experiences.

We wish you the very best and look forward to working with you. Congratulations!

Sincerely,

Bayer Fund

[AFGREQuestions@Monsanto.com](mailto:AFGREQuestions@Monsanto.com)



\*Brief, Overarching Summary of Project / Program In no more than four sentences, please provide a brief description of your project/program, what you plan to do, and who it will benefit. This is the text that will be used to describe winning programs, so be sure it is simple and succinct.

Technology is increasingly vital to modern agriculture. This applies to agricultural support services (e.g.: agronomists, dealerships, extension services) as much as to farmers, themselves. Midway does not have a specific agriculture program but, with the equipment that is requested, we will be able to use our technology and business programs to promote agricultural careers, especially those that utilize drone and GPS technology. This project will help students prepare for evolving careers in agriculture as well as those that don't even exist yet. Midway is a rural district which will allow us to develop partnerships with local farmers and businesses to enhance the experiences the students will receive through this equipment.

Population's Need for Program Please describe in a brief narrative any further details about this particular target population and why they need this project / program, activity, or materials.

Midway is a rural district. The largest of seven communities in the district has less than 200 people in it and the smallest communities have only a few houses, an elevator and, perhaps, a bar. Agriculture is vital to this area. Major crops grown include edible beans, soybeans, sugar beets, wheat, potatoes and sunflowers. This area needs young people who will go into farming but, just as vital, is the need for young people to go into the numerous services, businesses and careers that farmers rely on for support.

Career exploration starts in the very early grades at Midway. Early career exploration tends to be very general with more specific exploration starting in the middle grades and becoming increasingly targeted in high school. We will follow that same pattern with this program. Students in grades 5- 6 will work with these requested technologies to learn basic skills with those technologies and start to study how those skills are used in the work place. The students in grades 7-8 are already attending career fairs which expose them to a variety of careers, including agriculture. The experience of working with this equipment will help our students have more meaningful discussions with the industry representatives at the fairs.

The high school years allow us to delve even deeper into agricultural careers by developing partnerships with local farmers and businesses. Midway's current Technology/Business teacher has farmed and worked for a farm dealership before switching to education so his connections and expertise will be valuable in guiding partnerships between the school and farmers/businesses. On the high school level,

students will integrate the business/accounting courses with the technology and career aspects of this program. Science, math, language arts and social studies teachers form an interdisciplinary team to integrate the program goals into their classes.

**\*Primary Objective of Project** Please describe the overall objective of your project. What specific needs will this address? How does this project fit into your overall school district objectives? What is your desired long term outcome?

#### Program goals

**#1: Career Exploration:** Midway takes students to several career fairs every year where they see the wide variety of careers that are available but the fairs only provide a glimpse of these careers. This project will focus on agriculture but the skills developed will be applicable to many other careers such as construction, aviation and engineering.

**#2: Exploratory Learning:** Students learn by doing and that includes having the opportunity to make and learn from mistakes. Midway believes in project-based learning. This requires teachers in various disciplines to work together. The connection between science, technology and math can be obvious but it's equally important that students understand the value of language arts and social studies as they work toward solutions.

**#3: Educational Relevance:** This equipment will allow students to develop projects that are more personal to them which will greatly enhance the dedication they put into their projects. By working with local farmers and businesses, they will work on real-life problems. These experiences will not only prepare them for many careers but will prepare them for a lifetime of learning.

#### School Goals

**#1: Improve Language Arts Skills:** Students can't just play with technology if they plan to solve real-life problems. They must be able to read relevant materials, conduct research, document their steps and findings and make quality presentations. These skills will be included in the projects associated with this equipment.

**#2: Improve Math Skills:** These projects will allow students to utilize math to solve real problems. The math teacher will be able to focus math instruction on specific project needs.

In short, the desired long term outcome will be students who can analyze, problem solve, think critically and act responsibly. They will be the kind of workers that can adapt as jobs change and who can live fulfilling lives.

\*Project Activities Please describe the specific activities of your project. Include information on:

- The key activities and expected frequency of the project or activity, including how equipment/materials will be shared;
- Specifics on any curricula or trainings to be utilized, including why they were selected; and,
- Specific short term learning goals and how this effort will be integrated into the existing curriculum.

The equipment being requested is:

- Crop Scouting Kit: This kit comes with a drone, sensors and a tablet. It is commonly used in the agronomy field. A local agronomist will work with the students to help them develop projects.
- John Deere 4640 GPS Display: This item is commonly used in field equipment. Students will learn to program the unit and use it for specific field applications.
- DJI Mavic Pro Drone Bundle: This is a smaller drone/bundle that can be used to supplement the Crop Scouting Kit. It includes a curriculum designed for school use.
- Altair Drones: These drones will be used for training purposes as well as for indoor use during bad weather. They include curriculum for coding.
- 3D printers: Over time, many dealers will be able to make some replacement parts rather than order them and wait for them to arrive. Manufacturers will, eventually, provide these dealers with the specs needed to make those parts. Proficiency in designing and making parts will prepare students for a variety of careers.

Once the equipment arrives, the first part of the year will be spent becoming acquainted with the equipment. It will be harvest season so potential partners will probably be too busy to help at this point but, as winter hits, they'll have more time to work with students to become more proficient with the equipment and to develop real-life projects for the winter and following spring. The winter will also be used to help students in grades 5-8 learn about drones, GPS and 3D printing. By teaching younger children, the high school students will become even more proficient. The spring provides opportunities to monitor snow melt and many things that will concern farmers as they prepare for planting. Students will work with a local dealership throughout the year on the GPS and 3D applications in dealerships. Business partners can help train staff in the use of this equipment or help us find trainings that staff can attend.

\*Timeline of Project Activities Please provide an overview of the expected implementation timeline and the key activities you

will conduct over the year. Please note, projects should begin no earlier than when the grant is awarded in August. Consider using bullet points by month to detail when activities will take place.

#### August 2019

- Order equipment and related materials after approval has been received.

#### September 2019

- As equipment arrives, technology class students will learn to use each piece of equipment and research how it can be used for agricultural use. Laws and regulations associated with the use of drones will be studied.

#### October -- November 2019

- Technology students who have been learning to use the equipment will meet with students in grades 5-8 to start familiarizing them with the equipment. The HS students will learn more about the equipment by teaching others.
- Technology students will research potential projects. This will include visiting with local farmers and business representatives.

#### December 2019 -- February 2020

- Continue work with students in lower grades to familiarize them with the equipment. Those students will also do classroom research relating to agricultural careers.
- Depending upon weather, much of the work during this time will have to take place inside but the equipment will be used outside as much as possible to see how it responds in various weather conditions. Local farmers can also work with the students to develop winter activities that will help farmers prepare for the planting season.

#### March -- April 2020

- Conduct projects planned during the winter. Prepare for public presentations in which they present what they learned.
- Additional use by students in grades 5-8.

#### May

- Finalize projects and prepare for summer projects so that the learning can continue during the prime growing season.
- Evaluate the program.

Ongoing throughout the year. As projects are developed, students will need to figure out what specific math, science, language arts and social studies lessons will be relevant. Teachers will work together to help students on this to develop interdisciplinary lessons.

**\*Impact Assessment**

Please indicate how the impact of the project/program will be assessed. Select all that apply.

Knowledge/interest test or survey  Review of standardized test/scores/course grades  Student or classroom observations

**\*Measurement of Impact and Outcomes** Please describe how you will determine the project success based on the Impact Assessment methods you noted in the prior question. Include information on any additional assessments you plan to utilize to determine the success of the project and its impact on students.

On the high school level, assessments will be developed that will be given to students before and after they start various activities. We will work with our business partners to develop rubrics that will guide instruction and learning as well as assessments that are real-life and are based upon skills and proficiency. Pre-activity assessments will be in written form but the post-activity assessments will be in various forms. Demonstration of skills will be a primary form of assessment but written reports and public presentations are also very important skills for students to develop. This is where integration of language arts lessons will be important as well as learning various technology-based documentation and presentation applications. The business partners will work with the teacher to provide feedback to students, determine proficiency and, when necessary, assign grades.

Student surveys will be used to determine student interest after various activities. This is not only important as we attempt to improve the program but it could also provide feedback relating to what aspects of agricultural technology is of special interest to the student or best fits the student's strengths. The assessments will be necessary for grading but, more importantly, they will provide meaningful feedback to students, help them develop a variety of skills, and prepare students for careers in agriculture and other industries.

The high school students will participate as part of a class but the students in grades 5-8 will participate in short-term activities scattered throughout the year. Interest surveys and post-activity assessments will still be used but will be based upon basic skills learned and the interest level of students rather than on proficiency and grading.

In addition to learning to use the equipment, it will be very important that students learn the laws associated with drone use. This will be one of the first things that is done at the beginning of the year.

**Involvement in Implementation** Briefly describe the staff who will manage the implementation of the project, including any past experience in creating or managing projects such as this one.

The teacher who will be primarily responsible for implementing the program will be the technology/business teacher, Mr. Mike Carroll. He is a farmer and has also worked for a local implement dealership. A local dealership has agreed to be a partner in this project. Another potential partner is Simplot Company. This is an agriculture based company that does a lot of work with drones and GPS. A representative from the company realizes the value of this program and his team will work with us as much as possible.

Various classroom teachers will be involved in the following ways:

- 5-8 grade teachers: Work with Mr. Carroll to develop trainings for their students. These trainings can be done by the high school students who will also have input in designing the lessons and assessments.
- High School (HS) Science and math teachers: They will have access to these drones and the students who are trained to use them for lessons directly relating to science and math but will also be resources for students who are doing drone/GPS related projects that require specific science/math skills.
- HS English teacher: This teacher will help students develop technical writing skills as they publish their reports.
- HS Social Studies teachers: This equipment could be very useful for lessons in geography, topography and mapping.
- School Counselor: The counselor can help line up guest presenters who can provide additional career guidance to students relating to agricultural careers.

**\*Sustainability** Describe how your district will sustain this project after the one year term of this grant in order to achieve the long term outcomes you described in your Primary Objective of Project above. This may include funding, staffing, impact measurements, and engagement of teachers and students. If you are requesting technology, please describe your district's network capabilities and the technology support (i.e. internet access, teacher trainings, maintenance policies, etc.) related to your proposed request.

Sustainability is very important to us for several reasons including: 1) this is a rather ambitious project and we believe it will take several years to reach it's full potential; 2) this program includes many facets



that we want to build on and apply to other parts of Midway's curriculum. These include exploratory learning, real-life problem solving, professional collaboration and student directed learning; and 3) we hope this will be a program that is replicable for other rural school districts.

The primary financial source for sustaining this program will be district technology funding as well as the use of existing staff. Additional grants could be applied for as specific needs are identified. If practical, we will set up a "business" which will charge farmers for services rendered, however, we don't want to alienate local businesses that are already providing these services and we don't want farmers to avoid working with us for financial reasons. We would prefer to accept donations from farmers and businesses that feel the program is worth sustaining and growing. Besides agricultural partners, Northrup-Grumman has as an Unmanned Aerial Systems center (Grand Sky) only 20 miles from Midway. We already have a working relationship with them and will ask them to be part of this program.

The district has adequate internet access and other technical support for this project. The primary instructor is a lifelong community member who anticipates working for the district for a number of years.

Project / Program Grant Revenues Please provide a brief explanation of the anticipated revenues for this project, such as where the funds are coming from, when they will be received, and confirmation of any funds that are already committed.

Any addition funding will come from the school district's technology fund. No other funds are committed at this time.

**Monsanto Fund Application: Program Expenses**

Expenses should include all program expenses, and please specify the allocation of the Monsanto Fund grant for each expense line (full or partial) in Column N.

Please Note: Complete only shaded areas, all other values will automatically calculate. Double-click below in the shaded areas to complete the template.

Organization Name:

Midway Public School #128



Program Expense

| Expense Categories                       | Description of Expense<br>(i.e. counselor; professional development training; food for after-school program; laptop computers; etc) | Cost Per Unit<br>(i.e. enter full time salary; enter cost for each meal; enter cost for equipment to be purchased; etc.) | Total Quantity<br>(i.e. enter percent of salary; enter percent for tax rate; enter number of meals or laptops; etc) | TOTAL Program Expense | Amount of Monsanto Fund Grant Allocated for Each Line Item | Remaining Program Costs Supported by Other Resources |
|--|---|--|---|-----------------------|--|--|
| Salaries                                 | Curriculum planning during the summer of 2019; overseeing during the year 75 hrs x \$25/hr =  | \$ 25.00   | 75  | \$1,875.00            | \$ 875.00  | \$1,000.00   |
| Salaries                                 |   |  |   | \$0.00                |  | \$0.00   |
| Salaries                                 |   |  |   | \$0.00                |  | \$0.00   |
| Benefits & Payroll Taxes                 |   | \$ 394.00  | 1   | \$394.00              | \$ 394.00  | \$0.00   |
| Contractual Services                     |   |  |   | \$0.00                |  | \$0.00   |
| Trainings/Conferences                    | Training estimate   | \$ 500.00  | 1   | \$500.00              | \$ -   | \$500.00   |
| Printing/Publications                    |   |  |   | \$0.00                |  | \$0.00   |
| Travel                                   |   |  |   | \$0.00                |  | \$0.00   |
| Vehicle Costs                            |   |  |   | \$0.00                |  | \$0.00   |
| Food                                     |   |  |   | \$0.00                |  | \$0.00   |
| Technology (hardware, software, systems) |   | \$ -   | 0   | \$0.00                | \$ -   | \$0.00   |
| Equipment Purchase                       | Inspire 2 Crop Scouting System (Drone)  | \$ 7,981.00  | 1   | \$7,981.00            | \$ 7,981.00  | \$0.00   |
| Supplies                                 | Devel PLA 3D Printer Filament   | \$ 24.95   | 64  | \$1,596.80            | \$ 1,596.80  | \$0.00   |
| Equipment Purchase                       | DJI Mavic Pro Drone Bundle  | \$ 1,097.00  | 2   | \$2,194.00            | \$ 2,194.00  | \$0.00   |
| Equipment Purchase                       | Altair Aerial AA108 Training Drone  | \$ 129.00  | 4   | \$516.00              | \$ 516.00  | \$0.00   |
| Equipment Purchase                       | Dremel Digilab 3D Printer   | \$ 1,439.00  | 3   | \$4,317.00            | \$ 2,948.20  | \$1,368.80   |
| Equipment Purchase                       | John Deere 4640 Universal Display   | \$ 8,495.00  | 1   | \$8,495.00            | \$ 8,495.00  | \$0.00   |
|  |   | \$ -   | 0   | \$0.00                | \$ -   | \$0.00   |
|  |   |  | 0   | \$0.00                |  | \$0.00   |
| <b>TOTAL</b>                             |   |  |   |                       |  |  |
| <b>COLUMN</b>                            |   |  |   |                       |  |  |
| <b>EXPENSES</b>                          |   |  |   | \$27,868.80           | \$25,000.00  | \$2,868.80   |

|   |   |  |
|---|---|--|
| Total amount above should equal the total program expense | Total amount above should equal the amount requested from the Monsanto Fund | Total amount should equal the amount requested from Additional sources |
| \$27,868.80   | \$25,000.00   | \$2,868.80   |

How do you plan to fund this program?

Program?