



JOBS FOR THE FUTURE

# Showcasing Work-Based Learning



The Role of Interdisciplinary Projects  
in Ag Prep

Spring 2018

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Thad Nodine is an education writer affiliated with Jobs for the Future, a Boston-based national nonprofit that provides technical assistance in support of The Wonderful Company’s education programs.

This brief on Wonderful Agriculture Career Prep (Ag Prep) is part of a series that includes an overview of the program (College and Career Success in the Central Valley), a description of student supports (Getting Ahead at School), and two briefs on linking education and careers (Skills Mapping in the Central Valley and Job Shadowing in Agriculture). All are available at [www.wonderfuleducation.org](http://www.wonderfuleducation.org).



**A Showcase Event.** Students participating in Wonderful Agriculture Career Prep (Ag Prep) have been getting their hands dirty: digging in the earth and trying to figure out how the composition of soils influences agricultural practices in California.

The students are sophomores from Washington Union High School, near Fresno. At the start of the spring semester in 2017, they split into teams and selected a region of the state to focus on, from Los Angeles to Watsonville, where they studied the history, culture, and agriculture. Then they visited a grower in their chosen area to see farming practices in action, examine and collect soil samples, and learn about the professional testing of samples for nutrients. Back at school, they analyzed and wrote up their results for biology, math, and English classes. They completed a research paper, a newsletter, a poster board, and a PowerPoint presentation.

In early June, the sophomores presented their results at a showcase event at their school district's conference room. The students wore business attire, and each one took a turn at the microphone to speak before an audience that included nearly everyone who mattered in their lives: their high school principal, teachers, and counselors; the superintendent of schools; their parents, family, neighbors, and friends; and a representative of The Wonderful Company, which is one of the largest employers in the Central Valley and one of the largest agricultural companies in the world. The students explained the fundamentals of soil composition, lab testing processes, the

*“Ag Prep is making education more relevant for our students. Combine that with the college credits that they earn, and this is a game changer. It influences their lives.”*

— **Derek Cruz**

Former Principal, Washington Union High School

relationship between soil type and water runoff, soil health, and the percentage of the world's crust that is arable. Afterwards, the teams stood in clusters near their poster boards, and, if you paused nearby, a young man or woman would step forward, shake your hand, and ask if you had questions about soil classification.

Outside the district building, a two-lane blacktop takes you past almond trees whose trunks rise from soil that helps to make the San Joaquin Valley one of the most productive agricultural regions in the world. The dirt crumbles slightly in your hand, but retains a loose ball: loam. On the branches above, almond fruits look like hidden gems: clusters of fuzzy, silver-green orbs tucked among long, olive-colored leaves. But the real treasures in this rural suburb, as in any town in America, are its young people—and Ag Prep is providing them with opportunities to thrive.

This brief describes how Ag Prep is using interdisciplinary, work-based projects as part of a broad strategy to increase academic expectations and make education relevant for students. Ag Prep considers work-based learning to be more than a work-site experience. Through Ag Prep's **showcase projects**, students “learn by doing.” They apply concepts from their science, math, and English classes to real-world problems. And they generate and test solutions inside and outside the classroom. In the process, they deepen their academic knowledge and gain professional skills, thereby expanding their opportunities for college and career success.



*“I’ve seen so much growth in these students. Two years ago, when they had to make a presentation to their peers, some students were crying. Now they’re talking into a microphone to a roomful of adults.”*

— **Steven Rizzo**

Ag Prep Coordinator, Washington Union High School

## What is Ag Prep?

Ag Prep is a partnership in California’s San Joaquin Valley that creates fundamental changes in how students experience school. The partnership brings together seven public high schools, seven public middle schools, three community colleges, two state universities, The Wonderful Company and its many brands, and other Ag-based companies. The Wonderful Company, a long-time supporter of education, health, and wellness in the Valley, manages the partnership through Wonderful Education.



In Ag Prep, students complete a college-prep curriculum and 60 college credits in high school, which enables them to earn an associate degree during the summer after graduation. Students participate in one of three Ag-themed pathways: Ag Business, Ag Mechanics, or Plant Science. Graduates can transfer to a university (with half their college credits already completed) or they can go straight into a one-year job fellowship in the agriculture industry, guaranteed by The Wonderful Company. In a region where too many students face low expectations, Ag Prep raises the bar.



## Integrating Work-Based Learning in School

Work-based learning is central to Ag Prep’s curriculum design. All participating students, during their four years in the program, engage in a wide range of work experiences in industry settings, and these activities build upon school projects that feature real-world problem solving. As students experience these in-school and in-the-field learning opportunities, the distinction between the classroom and the outside world begins to fade. They gain experience in trying out new skills, applying academic concepts to practical challenges, modeling successful workplace behaviors, performing tasks in authentic settings, working with and challenging their peers, and presenting themselves professionally to other professionals. Work-based learning is one of the best ways to make the school curriculum come alive for students. It is also one of the most effective ways to learn.

*“The projects make the classes really fun. We’re also learning what matters.”*

— Ag Prep Student

Ag Prep integrates work-based learning with instruction in two primary ways, through (1) a sequence of career experiences in the Ag industry and (2) the completion of an interdisciplinary project each semester. This brief summarizes the career experience sequence and then focuses on the interdisciplinary projects. For more information about work-based learning in Ag Prep, see *Skills Mapping in the Central Valley* and *Job Shadowing in Agriculture*, at [www.wonderfuleducation.org/publications/](http://www.wonderfuleducation.org/publications/).

## 1. Career Experience Sequence in the Ag Industry.

Ag Prep features a unique sequence of career-related Ag experiences for every student every year. The activities are transformative for many students, as they learn how to interact closely with successful professionals for the first time in their lives; witness the range of roles in a fast-paced, high-tech workplace; and gain experience performing job tasks in the industry. Ag Prep connects these work-site experiences back to the classroom, where students write about their experiences; design and implement science experiments, develop academic research, and create business plans related to their career exploration; receive mentoring from an Ag professional during senior year; and create résumés and practice interviewing for jobs.

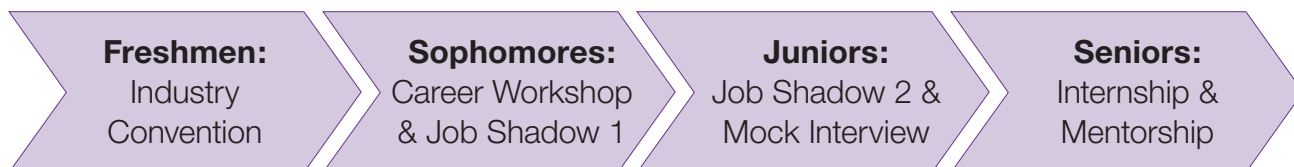
- **Freshmen: Industry Convention.** All 9th graders attend the World Ag Expo, where they network with Ag experts, learn about industry innovations, and begin to identify key Ag career interests.

- **Sophomores: Career Workshop and Job Shadow #1.** All 10th graders attend a career workshop and participate in an intensive job shadowing experience with a midlevel manager at an Ag company.

- **Juniors: Job Shadow #2 and Mock Interview.** All 11th graders participate in a second job shadowing experience and go through a mock interview process to enhance their interview skills.

- **Seniors: Internship and Mentorship.** All rising 12th graders who are on track to fulfill program requirements participate in a paid two-week internship at The Wonderful Company. In most cases, the internships take place during the summer prior to senior year. Seniors also participate in a mentorship experience with a Wonderful employee, to help guide their college and career plans.

### Ag Prep's Work-Based Learning Sequence in the Ag Industry



## 2. Interdisciplinary Showcase Projects.

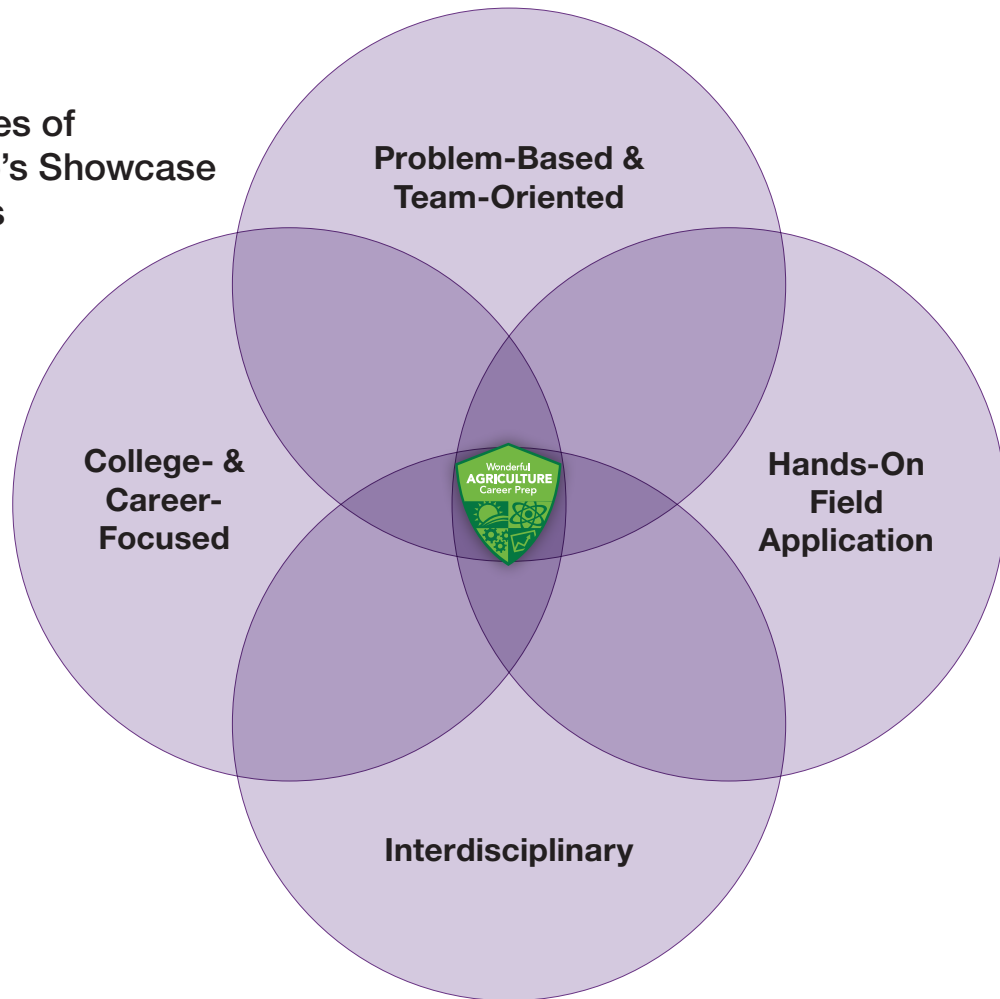
Ag Prep's interdisciplinary projects complement its career experience sequence by deepening students' conceptual and practical understanding of the field of Agriculture. Projects are designed by teams of teachers at each school for each grade level. The purpose is to engage teams of students in investigating and responding to an authentic problem that spans academic disciplines and engages the physical world. The students' responses might include proposing

a solution, designing an experiment, creating a prototype, or otherwise taking action to address the challenge. Projects include a hands-on field experience and conclude with a showcase event in which students present their findings in a professional setting, using multiple formats that include writing, calculations, and the use of media. Projects feature the following attributes:

- **Problem-Based and Team-Oriented.** Students work in teams to explore a real-world problem and its context in a sustained way. Through planning, experimentation, and analysis, the teams develop and test a workable solution. Each team is given autonomy to organize as needed for each phase.
- **Hands-On Field Application.** Projects involve a practical experience in the field or lab tailored to the student’s career pathway in Ag Business, Ag Mechanics, or Plant Science. This often involves gathering data or testing hypotheses through experimentation.

- **Interdisciplinary.** The projects include more than one academic discipline, which in turn requires time for teachers to work together to design the project and integrate it into instruction. College instructors are included where possible.
- **College- and Career-Focused.** Projects align with the scope and sequence of each participating high school course, while addressing college and career standards. This includes identifying professional and technical skills that the projects address, as outlined in the Ag Prep skills maps.

**Attributes of Ag Prep’s Showcase Projects**



*“These projects have opened my eyes. The process you go through— I learned about business and agriculture. It’s not just farming. It’s a lot more.”*

— Ag Prep Student





# Planning the Interdisciplinary Projects

Through its interdisciplinary projects, Ag Prep combines work-based learning and project-based learning to make the school curriculum powerful and relevant for students. In working with high school teachers, Ag Prep has found the following project components, teacher planning routines, and overall guidelines to be useful.

## Project Components

At the most basic level, interdisciplinary projects involve the following pedagogical steps:

1. Introducing students to the project topic and discussing the academic standards and professional skills that the project involves.
2. Supporting students in mastering those standards and skills through their completion of a problem-based, interdisciplinary project that includes field experience or application.
3. Having students demonstrate their mastery through a showcase presentation.

These steps are embedded in the following components that Ag Prep schools employ in designing their interdisciplinary projects.

**An Engaging Launch.** Ag Prep teachers work together to design project launches that are intriguing for students. At Washington Union High School, for example, the 9th grade cohort met together for lunch in a common room, and on each table was (1) a sign labeled by year and (2) a specific number of water bottles representing whether this was a wet or dry year in the Central Valley. Each table could use their allotted water bottles to purchase food items for lunch, with some items (such as a salad) costing a few bottles and other items (such as a burger) costing many bottles. Teachers facilitated

a discussion in which students reflected on how it felt to have fewer or more bottles than neighboring tables, the process each table used to make decisions about food purchases, and their insights regarding human behavior during droughts. Students were then provided with a full lunch as the president of the Fresno County Farm Bureau, as guest speaker, posed the project's driving question: How do we meet the irrigation needs of the Central Valley's top-producing crops with limited impact on natural water supplies?

**The Role of Each Course.** Each teacher participating in the interdisciplinary project needs to take responsibility for communicating broadly with students about the project—including the academic standards and professional skills students will learn. More specifically, each teacher also oversees and grades project deliverables related to his/her own course.

- An English class might focus on research and writing, with results presented in a report, newsletter, PowerPoint presentation, or website.
- A social studies or history class might explore the historical, cultural, or economic context of a topic.
- Math might include computations, statistical analysis, and theory.
- A computer class might employ software for design, calculations, project management, outreach, or presentations.
- Biology or Plant Science might feature scientific concepts and experiments.
- Ag Mechanics might involve the building of structures or tools.
- Ag Business might involve the creation of a business plan or pitch, or the use of marketing techniques.



**Hands-On Field Application.** Interdisciplinary projects include hands-on experiences in the field or in a lab as part of the students’ investigation of a problem. At Washington Union High School, for example, students visited a field or orchard to gather soil samples and talk with soil experts on site; they also had their samples analyzed by a professional lab. At Sanger High School, students coordinated across Ag Mechanics and Plant Science pathways to test water usage of various hydroponic systems; the Ag Mechanics students built the systems and the Plant Science students managed the experiments. At Wonderful College Prep Academy in Delano, teams of students developed a business plan based on their earlier efforts to grow a nutritious food crop without soil. The business plan drew from student participation in a professional Ag conference and at a job shadow at The Wonderful Company, and the students pitched their plans to business professionals at a job fair.

**Instruction About Working in Teams.** Collaborating well with others is a crucial professional skill in the workplace, so Ag Prep teachers are encouraged to provide students with instruction on how to perform effectively in teams. Examples include asking students to share the challenges they’ve had with group projects in the past, and to brainstorm ways

to overcome them. Students need basic instruction about project management, breaking up functions by role, internal reporting and deadlines, and strategies for peer accountability.

*“Every time they give us a project, we have a hands-on experience associated with it—like when we did the bee project, we went to see a bee farm, so we got to see how it works.”*

— Ag Prep Student

**Monitoring Progress Along the Way.** Student teams need autonomy in addressing project challenges, but they also need support in tracking progress and meeting deadlines. Common strategies can include the use of process-oriented assignments such as early mockups or drafts. Some teachers have students post their major steps or benchmarks on the classroom wall or electronically. As students check off each task, they learn to pace their work and monitor progress on their own. To help students prepare for the showcase event, teachers have them practice a variety of presentation formats in advance.

**Planning the Showcase Event.** The showcase event provides Ag Prep students with the opportunity to present their findings or demonstrate their work process in a semi-public forum. If the team does not reach its expected results, then that, in itself, is an appropriate focus of a presentation. Some teams organize two events, one for other classes during school hours and a grand showcase for a broader audience in the evening. During the first event, presenters can field questions and receive feedback to help them prepare for the final showcase. Typically, the project teams invite local industry, the community, the district office, school administration, teachers, faculty, parents, and other students. When possible, the student teams manage event planning, including invitations, parking, signage, and greeting of guests. They can also manage technical aspects of the presentation, including network access, sound, and graphics.

## Showcase Project Examples

**At Wonderful College Prep Academy (WCPA)**, juniors were tasked with creating a new Ag company and defining its key job positions and responsibilities. Sophomores, in turn, had to write their own résumés and apply for jobs in those companies. The juniors assessed the sophomores' application materials, and, as part of a showcase event that was "private" rather than semi-public, the juniors interviewed the sophomores for the positions, told them whether or not they were hired, and provided feedback.

*"It was intimidating to tell them that they weren't hired because they were like, 'Come on, it's my grade.' And I was like, 'It's my grade too, and if I just give you this, you're going to think you're doing things right. I want you to correct your mistakes.'"*

—An 11th grade student at WCPA

**At Sanger High School**, sophomores were asked to create a business plan, a budget, a building design, and marketing materials for a new nursery. They presented their sketches and other materials at a showcase event.

*"We started by researching what needs to be in a nursery and running your own business. I learned how long it would take to make a real business, make it work, and budget everything correctly. It's just so much, what it would actually take!"*

—A 10th grade student at Sanger High School



## Training and Logistics

Many teachers do not have experience incorporating work-based learning into their classrooms. Ag Prep schools provide instructors with professional development, including planning time, to support interdisciplinary projects.

**Several Days of Training (end of spring or early summer).** For teachers participating in interdisciplinary projects for the first time, Ag Prep offers a few days of training to discuss the role of project-based learning in relation to their students and their discipline. This typically includes contextual information about pedagogy and hands-on strategies for creating and overseeing projects. It is also helpful for teachers to attend a showcase event at another Ag Prep site, to see the student presentations in action.

**A Few Days of Pre-Planning (August and December).** Teachers also need dedicated time before the semester begins to plan their projects across disciplines and consider their impact on their own classrooms. Working together, teachers determine the processes students will go through, the outcomes the teachers expect, the standards and skills to be addressed, and the

adjustments needed to their scope and sequence. This includes time to plan each project component, particularly the launch to pique student interest.

*“Now, instead of me focusing on just my math department, I’m collaborating with English and science teachers. The students are seeing the connection—that there is math in health classes, and there is English as well.”*

— **Claudia Robledo,**  
Math Instructor, Mendota High School

**Planning Time During the Semester.** Schools participating in Ag Prep schedule common planning time weekly for teachers to address issues associated with their students. Throughout the year, teachers use portions of this time to plan the projects, including logistics, student progress on deadlines, challenges that emerge, and the showcase event.

### Some Guidelines to Consider

Ag Prep has found the following guidelines to be useful as teachers work together to create effective showcase projects.

**Start small.** The projects need to be interdisciplinary, but they do not have to include all disciplines. They do not need to last the full semester.

**Select a project that connects with academic standards.** If a project is overwhelming for teachers, then it will be difficult for them to integrate in their classrooms. Look for topics that are a natural fit with academic standards, career skills, and scope and sequence.

**Make project-based learning a routine every semester.** This is not an add-on to other tasks; it is part of regular teaching duties. Over time, students come to anticipate the next project; they improve their skills with each project and presentation.



## Ag Prep's Vision in Action

Interdisciplinary projects encapsulate Ag Prep's drive to make each school day rigorous and relevant for students. **As student teams work together to investigate a problem, design a solution in the field, and share their findings with professionals, they deepen their knowledge across academic disciplines and see for themselves how their analytical, computational, technical, and communications skills support their ability to be entrepreneurial and to prosper in the workplace.** Whether they are creating a solution to an irrigation problem or developing a business proposal to expand a greenhouse, they realize that they cannot succeed without the skills they learn in English, science, and math. In many cases, students surprise themselves by the results they can achieve together and by their own acumen in presenting to parents, teachers, peers, community members, and business representatives.

*“What makes this different is the process. I really liked this not just because it's hands-on, but [also] because it's like an insight into your future.”*

— Ag Prep Student

What's the best way to witness the Ag Prep vision in action? Visit a showcase event in December or June to see a roomful of adults asking questions as groups of high school students share what they know and reflect about what they still want to find out. Watch for the sparkle in their eyes as they “get it”—that is, they figure out that this is not just about school or business. This is about their own future and the real opportunities that dedication, hard work, and learning can bring.







## Resources

Cahill, C. 2016. *Making Work-Based Learning Work*. Jobs for the Future. July.  
<http://www.jff.org/publications/making-work-based-learning-work>.

Halpern, R. 2012. Supporting Vocationally Oriented Learning in the High School Years: Rationale, Tasks, Challenges.  
In *New Directions for Youth Development* 134: 85-106.

Halpern, R. 2009. *The Means to Grow Up: Reinventing Apprenticeship as a Developmental Support in Adolescence*. Routledge.



## Jobs for the Future

Jobs for the Future works to ensure economic opportunity for all. Our innovative college and career pathway models give those struggling to succeed access to needed knowledge, skills, and credentials. We partner with education, workforce, and business leaders to understand the labor market and design systems to sustain a pipeline of skilled workers. We advocate with policymakers for state and federal policies to support this work.

## The Wonderful Company

The Wonderful Company is a privately held \$4 billion international company that offers healthy, iconic brands for healthy lifestyles. Wonderful Pistachios & Almonds is the largest vertically integrated pistachio and almond grower and processor in the world. Wonderful Citrus is the largest integrated grower, packer and shipper of fresh citrus in the U.S. These operations, which are located in California's Central Valley, are also affiliated with the worldwide leader in fresh California pomegranates and various pomegranate-based products. The Wonderful Company's products can be found in the produce aisles of grocery stores nationwide under popular retail brands, including Wonderful Pistachios, Wonderful Almonds, Wonderful Halos and POM Wonderful. For more information, go to [www.wonderful.com](http://www.wonderful.com).

## Wonderful Education Programs

Wonderful Education is an innovative educational program that is driving positive change in California's Central Valley. As a philanthropic extension of The Wonderful Company, Wonderful Education funds a host of college and career readiness programs to promote opportunities for young people in California's Central Valley. Wonderful Education initiatives include college and career readiness, college scholarships, school grants, summer school programs, arts education, early childhood programs, teacher development and parent engagement. Wonderful Education coordinates directly with The Wonderful Company to offer a sequence of rich work-based learning experiences for all Wonderful Agriculture Career Prep students, including paid internships.



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