Case study

Weber School District

HP Z Workstations enable success in innovative STEM curriculum

Industry
K-12 education

Objective
Provide reliable, high-performing computing for real-world Science, Technology, Engineering and Math (STEM) education

Approach
Integrate HP Z Workstations

IT matters
- Support more than 500 pre-engineering students in seven courses
- Robust, dependable computing power for performance-intensive applications
- Seamless deployment of up to 2,200 systems annually

Business matters
- Predictable IT costs
- Easy support and maintenance with known product lifecycles
- Rock-solid reliability and performance on a budget

WEBER SCHOOL DISTRICT
Preparing Students for Success

"Our students require high-performing computing to support the real-world education that will give them a competitive advantage after high school. We run our compute-intensive applications on HP Z Workstations because we have deep confidence in their power and reliability."

– Dave Brooks, director of technology, Weber School District

Weber School District in Northern Utah grew out of a one-room log cabin with a single teacher at Brown's Fort in 1849. Today, more than 30,000 students are enrolled across 30 elementary schools, nine junior high schools and four high schools. A leader in offering a competitive science, math and technology based curriculum, Weber School District is committed to provide educational experiences which motivate each student to become a lifelong learner, attain academic and personal potential, and enter the work force with beneficial skills.

HP recommends Windows.

The U.S. Department of Commerce estimates that jobs in science, technology, engineering, and math (STEM) will grow 17 percent by 2018—nearly double the growth for non-STEM fields. By 2018, the U.S. will have more than 1.2 million unfilled STEM jobs because there will not be enough qualified workers to fill them.

Weber School District recognized a decade ago that jobs in STEM will be in high demand, and took steps to advance students' competitiveness in college and beyond. Glenn Prisk, technology career coordinator, Weber School District, explains, "We took a hard look at how we could better equip our students to meet the demands of the future. We adopted Project Lead the Way (PLTW), starting with just two courses. We now offer the full complement of courses in computer systems, aerospace, principles of engineering and civil engineering. From 100 students our first year, we now have more than 500 students enrolled in our PLTW program."

Students win

The District chose Project Lead the Way, the nation's leading provider of STEM programs, because of its world-class K-12 curriculum, high-quality professional development for teachers, and outstanding partnerships. Dave Brooks, the director of technology at Weber School District says, "PLTW alumni pursue post-secondary degrees at a rate 25% higher than the national average, study engineering and technology in greater numbers than the national average, and have a higher retention rate in college engineering, science, and related programs than non-PLW students. That was all very attractive to us."

"HP impresses with its consistency and HP Z Workstations have always been a mainstay in the STEM arena. They are powerful, reliable, and adapt to meet our needs."

– Jerry Nelson, PLTW teacher, Weber School District

And because it's not possible to implement a program to develop STEM leaders without powerful, high quality technology, Weber chose HP for its core technology needs.

HP's partner Dynarama explains that Weber School District is a leader in Utah in technology investment for education. Prisk adds, "We do invest a lot in technology, because we see it as a critical success factor. Without reliable high-quality technology, every other investment we make—in training, in programs—would be less effective. Dynarama helped us identify and select HP and we couldn't be happier."

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One of the District's four high schools has become the magnet school for PLTW students where trained STEM educators, HP computer labs and special equipment are located. Students are bused to the magnet school for their PLTW classes.

Real-world delivered to the classroom

PLTW at Weber is focused on preparing students to succeed beyond the halls of high school. That means creating opportunities for students to tackle real-life scenarios and design workable solutions. Creating those experiences demands high-performance computing and HP Z Workstations, such as the HP Z230 SFF which was designed for heavy 24x7x365 workloads and delivers next-generation processor and graphics technologies.

Teacher Chris Davidson says that in his civil engineering courses, students use Autodesk Revit ® daily to design structures, from simple sheds to houses and commercial buildings.

"Like many engineering programs, Revit demands a ton of RAM. HP Z Workstations have the speed and power to run these programs without hiccups," says Davidson. In Principles of Engineering, students gain knowledge of a broad range of concepts

HP recommends Windows.

and engage with software programs such as Canvas, an illustration software; MD Solids, educational software for mechanics of materials; Logger Pro, data collection and analysis software; Scratch, a coding program; and ROBOTC for robotics. "HP Z Workstations allow us to use these complex, compute-intensive applications without worry," Davidson says.

Jerry Nelson, another PLTW teacher, adds that HP Z Workstations give students the ability to open multiple projects and to view 3D renderings from different angles. "The students can pull projects apart and piece them together, see them from all sides, zoom in and out, and critique their work, all without having to print them," he says. "That's a big time and resource savings."

"With HP Z Workstations, the software runs so well that students are able to focus their energy on creative problem-solving."

– Holly Barker, PLTW teacher, Weber School District

Nelson's students use a combination of programs, including ROBOTC, RobotProg, and RoboCell, to simulate a factory in the classroom. By the end of his course, students are utilizing four to five programs to deliver a final project.

"A touch of a single button is all that is required for a product to move through the fictional factory floor and come out ready to be sold," he says, "HP Z Workstations are changing the way we do things in education. Computers are no longer just for typing a business letter. Instead, students are using the technology to run the entire factory workflow. They are using Lean Manufacturing to make the process profitable. And they have the opportunity to see how the technology can work in different industries. It's engaging them at an entirely different level."

Education takes off with HP Z Workstations

Aerospace is another industry that Weber students can explore within PLTW. The school works with Hill Air Force Base to create an aerospace program that enables students to learn the physics of flight and how to design and control airplanes using 3D modeling programs. The HP Z230 SFF Workstation is perfect to support this curriculum; it was designed for heavy workload environments, and has endured extreme test and validation processes for rock-solid reliability.

Nelson explains, "We now have 14 students with access to computer flight simulators, programs that require powerful and reliable computing technology. They are able to log a minimum of six hours of flight instruction and they create a flight plan, then simulate a 30-minute take off and return to base session."

Customer at a glance

Hardware
- HP Z220 SFF Workstations
- HP Z230 SFF Workstations
- HP Z400 Workstations

Software
- Autodesk Revit
- AutoCAD
- Canvas
- MD Solids
- LoggerPro
- SCRATCH
- ROBOTC
- ROBOTPro
- RoboCell
- Adobe® Creative Suite

HP services
- HP Financial Services

DYNARAMA

HP recommends Windows.

In another example, teacher Holly Barker offers a senior Capstone class where students have the opportunity to work with a leading company in automotive safety systems, including seatbelts and airbags, to work on problems that the company has not been able to tackle. A team of corporate engineers assess each project and have been impressed with the level of creative thinking and research the students have delivered, which the company can then incorporate into their next round of design. Barker says, "HP technology is enabling this level of engagement and real-world experience. It's invaluable, teaching resourcefulness and tech savvy that you can't get any other way."

Barker reports that several students have come back to tell her that they were so well prepared for their college courses that they didn't encounter any new material until the end of their sophomore year.

Flexibility with HP Financial Services

Brooks says that HP technology is doing great things for the PLTW program at the District and that working with HP Financial Services enables the District to keep technology fresh while meeting their budget objectives. "We are on a four-year technology renewal program, which means we replace 1,400 – 2,200 systems each year. Working with HP and Dynarama, we've been able to centralize our purchases and realize more predictable costs. Plus we have flexible invoicing options and excellent value for our investment."

Dynarama indicates that in addition to providing students and staff with new equipment every four years, the support and maintenance is predictable. The technology team knows the consistent product standards, deployment schedules and lifecycles that make planning and support simple.

"HP Z Workstations have been a solid and good choice for us," says Brooks.

A bright future

Over the last three years, Weber has become nationally recognized as a leader in PLTW; other schools and districts will visit to see what Weber is doing and how, explains Prisk. The District is also cascading PLTW down throughout its' own ranks, with HP computer labs up and running in each of the nine junior high schools. Weber is now piloting a K-6 STEM based pre-engineering program throughout its elementary schools over the next four years. At the high school, Weber is also planning to add a computer software engineering course.

> "With HP Z Workstations, we don't have problems with reliability. HP Z Workstations just work."
>
> – Glenn Prisk, technology career coordinator, Weber School District

"No matter where these students want to go, whether it's to university or the military, they have the academic background and the hands-on experience to succeed. HP makes it easy to offer this cutting-edge program to support learning," says Prisk.

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The HP Z220 Series delivers workstation performance and energy efficiency at prices you'd expect from a desktop PC. High performance from next-generation Intel® Xeon® and Intel® Core™ processors, four integrated USB 3.0 ports, new professional graphics options, and enterprise-class memory technologies.

The HP Z230 Series offers performance and energy efficiency from the latest Intel® Xeon® processor E3-1200 v3 family and rich graphics designed to keep up with demanding workloads.

4AA5-3430ENW, August 2014