

Computer Science Teacher Profile: Kellan Standley



Kellan Standley has been teaching for five years in Bainville, MT, a town of about 200 people. He teaches junior and senior high Agricultural classes, including Agricultural Technology, Computer Apps, Intro to Business, and semesters of plant science, animal science, welding, drafting, woodworking, and natural resources. This is his first year teaching Computer Science. In our conversation, Kellan describes possible CS-related futures for his rural students, how his own CS learning has made him a more empathetic teacher, and how his rural district is working to build multiple CS on-ramps for all of Bainville's students.

The Future Applications of Technology and Ag

We have a lot of students who are from very rural backgrounds, who live and work on farms and/or see paths to the Bakken area working on the oil fields. We have a lot of students who don't necessarily see the value of learning things like computer science.

With that said, I have a lot of kids that build creative things. If I turned them loose in the shop, they would create something that would blow your mind with very little direction. In the long run, I think they'll get there with coding. For now, I'm trying to develop the interest and help them see the value in being able to do those sorts of things.

There was a show I used to watch when I was younger, and I lived on a ranch, they had a segment where farmers had custom-made machines for different purposes to use around the ranch. They had designed the hydraulics and electric and all that stuff for them. I was thinking: there are so many ways that technology is being used in ag today that it wasn't 10, 20 years ago.

And, that's going to continue to evolve.

When kids don't necessarily see the value of knowing computer science, it's the sort of thing where if they understand how to code *and* they also learn the hands-on mechanical aspects from my Ag classes—**they could be the people who are creating those future applications of technology and Ag.**

I think it's important for the people who are out in the field using new technology to be a part of the development process, since they're the ones who know what works and what needs improvement. In a lot of schools, there seems to be a large divide between your average CS student and your average Ag student. I'm excited to try to find ways to help bridge that gap so they can be working together on the technology that will be used to help us feed more people more efficiently.

Knowing How to Code Makes Me a More Empathetic Teacher

In high school I took a web design class and enjoyed the opportunity to be creative with it. In college, I was interested in coding and took a course on Java. I played around some with making apps on the phone.

The thing I find the most rewarding and most frustrating is that it requires a lot of patience, which is not my strongest suit. I like the challenge of knowing what I want to do and more or less knowing what tools I have available and trying to figure out not just a way to do it but the *most efficient* way to do it

But when I get stuck, or it doesn't work the way I want it to, I have to go back and figure out what went wrong or how to make it better, it's difficult sometimes to keep at it and try to push through and not just give up.

Having that experience makes me more empathetic to how I'm sure the kids feel going through the Computer Science Principles curriculum, when they hit a snag.

At our school we talked about students having grit when dealing with obstacles — I've been very surprised and very impressed so far going through the CSP curriculum how well that group of kids has done.

I can empathize with their struggles, but also kudos to them for how they handle challenges.

Student Story: Small Steps towards CS

One girl in my class, I would tell about. I know her family really well. No one in her family is interested in technology. They're a bit averse to it.

At the beginning of class, I asked my students what their knowledge level was, what their interests were, what they were excited about. She came in with very little understanding of it. Not exactly opposed to it, but not a lot of interest in learning it either.

We're halfway through Unit 2, and so far, seeing her work through the projects has impressed me. She has been finding really interesting solutions and going beyond and embracing CS when it's something she came in and didn't really care about at all.

I think that's awesome.

Introducing Computer Science in a Small Rural District

Our administration were interested in improving our computer science education which is how the Teachers Teaching Tech program got brought to my attention. My superintendent said “this looks like a great opportunity and it’s something we want to do more of.” There wasn’t really any opposition or resistance, it was more asking where could we fit it in.

After I came back from TeacherCon, I didn’t want it to go to waste. So, I waited —and this is one of the benefits of being in a small school—I waited until after I had gone to talk to my admin and see what ways we wanted it to work. What grade level we wanted, how to fit it in. Ultimately, based on our preliminary schedule, and knowing the school board would need to approve any changes to graduation requirements, we looked at the Computer Apps class for freshman.

We are integrating the CSP curriculum as part of the required class for all freshman, so I get to teach everybody.

If it had been an elective, I’m not sure exactly what the demographics would have looked like. My gut feeling is that I would have had more males because I’m the Ag teacher slash Shop teacher. But we don’t have too many kids that fit the nerdy white male stereotype.

Building (and Maintaining) CS Options for the Future

I want computer science to be something that we can take and build on in the future. My administration was definitely on board with that.

My goal is expand CS so it’s not just a one-year thing. Even if it’s small chunks throughout the school. Right now one of our elementary teachers in building is using CS Fundamentals curriculum. We have our Business teacher with the 8th grade Tech class using some of the CS Discoveries curriculum. We have the CS Principles at the high school.

I’m looking into the logistics of seeing if any of the students want to take the AP test this year. If not that, figuring out a way down the road to open that up and push it back later into high school. Or possibly expanding what we offer. If the kids really like CSP this year, that they’d have a class just devoted to learning Javascript or something CS-related for kids who might be interested in pursuing it as a career choice. Right now, this is kind of it. Unless they want to take an online class.

It’s just maintaining and then hopefully building, getting kids involved with more options.