



Anna Cecchi, 9, plays a mod she created on Minecraft, a popular game that has drawn many children into the high-tech world of coding and programming.

# WHIZ KIDS

Byte-sized computer courses groom the next generation of technology leaders

BY ROBIN EPLEY

**A**nna Cecchi, 9, was drawn to Sacramento State's iD Tech Camp this summer partly because of her love of the online game Minecraft. In the game, players use cubes to build, combat, forage and explore the world of Minecraft. They can also create their own content for the world, using Java, and share the "mods" (modifications) online or with friends.

Anna says she and her 11-year-old brother "love to play Minecraft at home." Released five years ago and now boasting more than 40 million unique users every month, the game's influence over young programmers is hard to overstate. Anna says one of her favorite parts of attending iD Tech Camp is the ability to share her Mi-

necraft mods with the other campers. Also, "there's lots of people to play with here," she says.

Camps, after-school programs and weekend courses that teach programming to children are becoming incredibly popular, preparing youth to enter an increasingly technological workforce. According to Code.org, a nonprofit advocacy group that promotes computer science education and increased participation of women and students of color, California had 73,487 open computing jobs in 2014, but only had 3,525 computer science college graduates that year. Of those college graduates, only 15 percent were female. Nationally, the U.S. has about 500,000 current openings in computer science jobs,

but in only 29 states — including California — can a computer science course count toward a math or science high school graduation requirement. In all other states, it's solely an elective course.

## MINECRAFT MODDERS

"[Minecraft has] been one of the biggest stepping stones into design and programming," says Connor Boule, the 21-year-old business major who serves as camp director for Sac State's iD Tech Camp. "Kids aren't limited by anything; they have endless possibilities of programming and level design. Minecraft has been a huge draw for students."

iD Tech Camps began 18 years ago and is a nationwide program at more than 100 college campuses offering computer science, STEM and technical courses for students age 7-17. At Sacramento State's program, students can choose from 17 different classes to learn skills like computer programming, Minecraft modding, robotics, 3D printing or app development.

"It's teaching them important skills like collaboration and innovation," Boule says, "and it's important to show them the different opportunities available to them, regardless of if they're thinking about it right now."

According to Karen Thurm Safran, vice president of strategic partnerships for iD Tech Camps, nearly 50,000 youth will attend their camps nationwide this year, and nearly 600 just at Sacramento State.

"We expect no prior knowledge going into the courses," Boule says. "Seeing [students] with no experience and then building a videogame in one week's time is amazing."



## GIRLS WHO CODE

Kaylee Doty, 13 and about to go into high school, decided — of her own volition, says her mother — to spend a week of her precious summer vacation working behind a computer screen at HackerLab's Project Code camp.

When other kids her age are playing in a swimming pool or watching television over the summer, Kaylee is learning how to write complex computer code, including SQL, HTML, CSS and Java programming languages. And she's not doing it alone — her teacher, a programmer, is just 16 and also female.

Sahej Claire is HackerLab's youngest teacher. A high school junior at Sacramento Country Day School, she is the creator, instigator and professor of the Project Code classes. Claire started programming at age 13 also and says she started teaching coding classes after learning that 74 percent of middle school-aged girls express interest in STEM careers, while only 18 percent of graduating computer science majors are women.

Claire started a class solely for girls, but after two months, she was getting bombarded with requests from parents about their sons.

"You think, 'Oh it's coding! How are they going to know what to do?'" Claire says. "But it's actually really simple." She says most of the kids, once they're exposed to it, get "really excited about it" and want to do more, but traditionally, interest in computer sciences usually begins to wane around ages 13-17. "I think it's important to get them interested while they're young so they never reach that drop-off age," Claire says.



- 1 Sofia, far right, plays with her campmates during a Lego robotics course at one of iD Tech Camps national programs, held at Sacramento State.
- 2 Campers as young as 6 years old learn how to code at Capital Region-based summer camp and after-school program, Dream Enrichment Classes.
- 3 Sahej Claire, 16, teaches Project Code classes to students just a few years younger than she is at HackerLab in midtown Sacramento.

Parents can enroll their students via the HackerLab website at [hackerlab.org](http://hackerlab.org). Claire teaches a few classes per month, and her Intro to Coding class costs only \$30. Her lessons are among the few coding classes offered to kids — not just at HackerLab, but in the city of Sacramento.

Even though her class is still mostly boys, Claire says the ratio is much lower than when she first opened it up to both genders, and students don't seem to have a problem with a teacher who is female, and just a few years older. "I'm not sure if [my age] makes me more approachable," she says, "but I think it helps, and to the girls who take my class, it's inspiring."

For Kaylee, having someone who can "teach on our level" is a good experience, she says. "It's cool knowing someone younger can do all of this."

#### DREAM ON

Jessica Tindel, a mom of three in Sacramento, launched Dream Enrichment Classes in 2005. While the program's initial class, Firefly

Art, focused on the arts, Tindel knew first-hand how difficult it was to find supplementary STEM education for elementary-aged children. So in 2011 she added the Early Engineers class, and this year introduced a new program, called HoneyCode, with the curriculum written

by a STEM teacher based in Silicon Valley. Currently, Dream Enrichment Classes holds more than 8,000 afterschool and summer classes in 85 schools from Elk Grove to El Dorado Hills. "I think the schools are still figuring it out, while we're agile," Tindel says, of STEM education.

During the inaugural HoneyCode program in Roseville, held this summer at Catheryn Gates Elementary School, campers as young as 6 worked with coding programs on tablets and laptops. Programs like Scratch and

Scratch Jr. were used to teach the basic building blocks of Java, a popular coding program, through a system of visual click-and-drag blocks representing pieces of code. Older campers pulled apart computer towers and built keyboard controllers. Younger campers programmed a wheeled, plastic bee — called Bee-Bot — to move

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- Connor Boule,  
camp director for Sac State's iD Tech Camp

*I've loved PBS since I was a kid watching Sesame Street*

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through the streets of a town they had crafted from cereal boxes and paper, via buttons on top of the toy's body.

It may seem like simple play, learning the process to move the robot to arrive at a designated place is integral to programming. It helps young minds understand the order of steps needed to write a computer program command, and eventually to write full code.

Silas Walker, 23, has a degree in mechanical engineering and has worked with Early Engineers the past few summers. "At the beginning of the week there was tons of questions," Walker says. "And as the week goes on, the questions get harder and more complicated. So either they're working on their own and figuring it out, or being OK with it being their own game and having the control to change it."

Alia Saad, a college student who teaches first- through third-grade campers, says that at its core, the program is about problem-solving. "What this class provides is them being able to face a situation and find a resolution," Saad says. "They find it themselves. This class has given them independence — they don't need an adult to tell them what to do." ■

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*Robin Epley is the special sections editor for Comstock's magazine. She is also the founder of Millennials in Media, Sacramento's only networking and mentorship program for young journalists. Find her on Twitter @robin\_epley.*

#### FIND OUT MORE:

##### iD Tech Camps

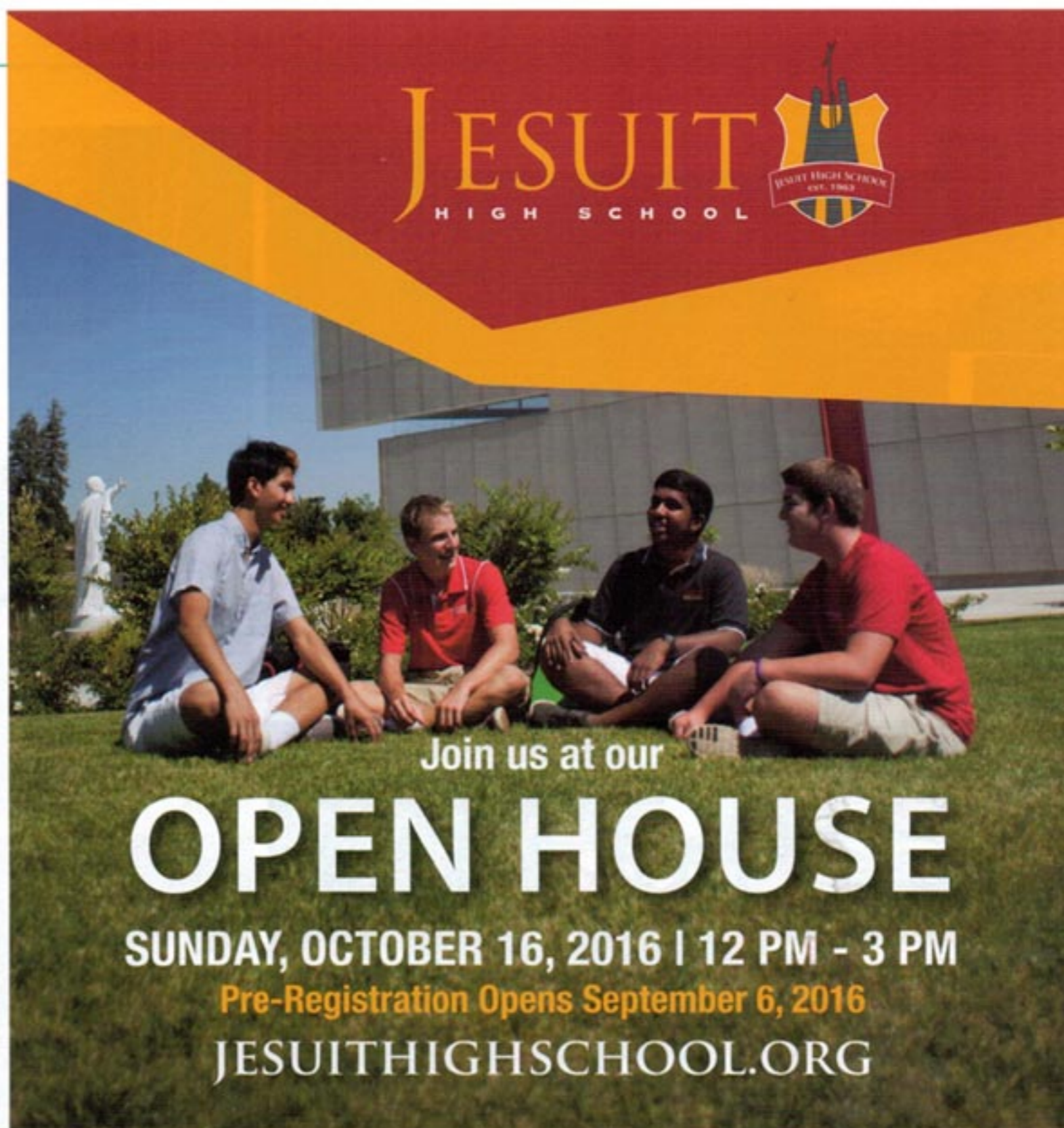
For summer courses with more than 130 locations nationwide, check out iD Tech Camps at [www.idtech.com](http://www.idtech.com) or on social media at @iDTechCamps.

##### Project Code

Get in touch with the Project Code team online at [projectcode00@gmail.com](mailto:projectcode00@gmail.com), @projectcoder or through the HackerLab website at [hackerlab.org](http://hackerlab.org).

##### Dream Enrichment Classes

Learn more about Dream Enrichment's programs at [dreamclasses.org](http://dreamclasses.org), or on their Facebook page at [www.facebook.com/dreamclassesandcamps](http://www.facebook.com/dreamclassesandcamps).



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