CHAPTER 10
BUILD

What we learn to do,
we learn by doing
—THOMAS JEFFERSON

Once we’re able to better ensure that all students have access to key technologies, among other things, it’s time to start looking at what students are actually able to do with this access. This is where the second letter of my 21st Century ABCs of Learning comes in: “B” for build.

“It’s important to teach problem-solving, and teach to the problem and not the tools,” entrepreneur Elon Musk said in an interview with Beijing TV. In 2015, Musk, the visionary founder...
of Tesla and SpaceX, pulled all five of his sons out of an exclusive private school because, he felt, it was unable to meet their twenty-first-century needs. Instead of embarking on a long search to find another school that could, Musk chose instead to open his own. He transformed a rarely used house he owned into Ad Astra, a small school tasked with teaching students in ways that better match their own unique gifts.

At Ad Astra, Latin for “to the stars,” there were no grades, and the school’s mission was to cater directly to each student’s skill set and passion. Most important, Musk insisted that the school be designed around learning by doing.

“Let’s say you’re trying to teach people about how engines work,” he explained in the interview. “A more traditional approach would be saying, ‘We’re going to teach all about screwdrivers and wrenches.’ But this is a very difficult way to do it. A much better way would be, ‘Here’s the engine. Now let’s take it apart. How are we going to take it apart? Oh, you need a screwdriver.’ It’s then that two important things happen: the relevance of the tools becomes apparent, and the students realize the purpose of their learning. They own their learning.”

The idea of teaching problem solving by learning to use tools, rather than just learning about them, is core to rewiring education. This is what the B means in my 21st Century ABCs of Learning: build. It’s not enough to tell digital natives things; we need to let them do things. Students must be able to get their hands dirty and create, discover, and build things. This is what Musk understood, and it’s why he pulled his own children out of one of the most prestigious schools in the country and made a new one designed around the idea of building to learn. What Musk really
did, whether he refers to it as such or not, was move his children into the emerging world of the maker movement.

THE MAKER MOVEMENT

Dale Dougherty coined the word maker to describe people who, as simple as it may sound, like to make stuff—whether an engineer designing a new computer or a kid creating a functional piggy bank out of Lego blocks. “It’s a fairly neutral term that could mean a lot of things,” he said in an interview. “I still like it for that purpose.”

Not only did Dougherty give the movement its name, but he’s also the primary person responsible for its rapid growth and popularity. In early 2005, Dougherty launched Make, the bi-monthly magazine that included specific step-by-step guides on how to build things. The idea was to provide a consolidated source for the DIYers (Do-It-Yourselfers) where they could read about cool new things that could be made by hand. He envisioned it as a worthy supplement to the broader, news-based Popular Mechanics—more of a niche magazine that could fill in some gaps. He had no idea that it would launch a cultural and educational revolution. Multiple terms and phrases have since appeared that reflect various maker components, including maker culture, makerspaces, and the Maker Movement.

Maker culture refers to the collective desire and preference of people to create things. Students are no longer content with being told about things; they want to make them—to learn about them through hands-on experiences. The digital-native generation likes