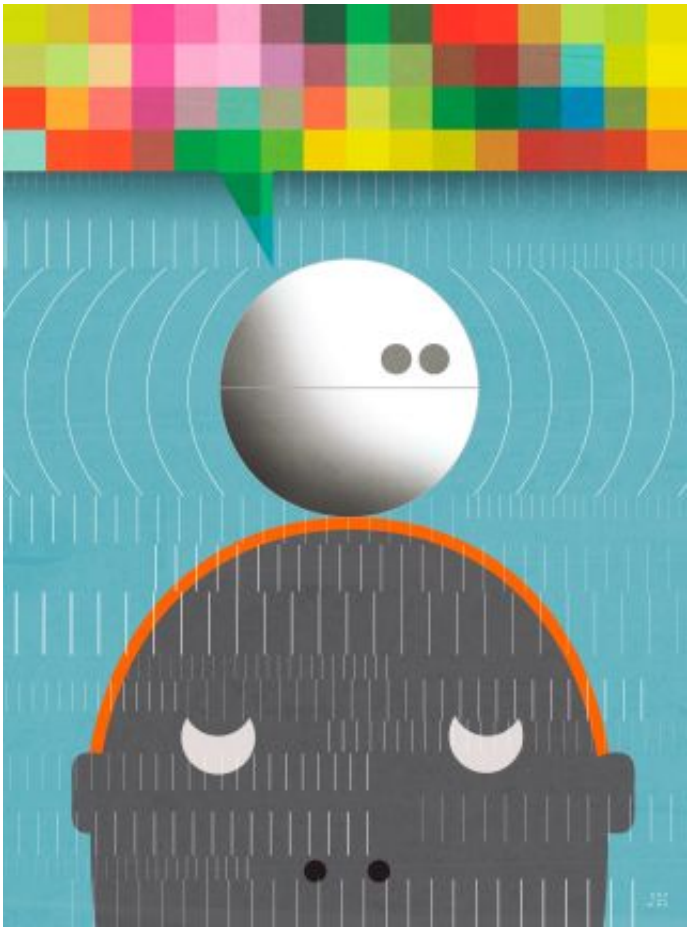
# A Whole New Ball Game



*Children can program Sphero, a white plastic orb, to traverse land and water. Illustration by John Hersey*

At Trail Ridge Middle School, which is forty minutes north of Denver, in Longmont, the old Colorado is giving way to the new. A stuffed grizzly that once stood at the entrance has been banished to a dusky back hallway, and many of the students are the children of tech workers. On a recent weekday morning, Anna Mills, a sixth-grade science teacher, shouted from the front of the classroom, "Grab your iPads and your Spheros!" When her command didn't work, she clapped twice, and this code was successful: her two dozen students clapped back, roughly in unison, and began getting up from their desks. Mills had divided her class into groups of three, and the leaders of each trio hurried over to a counter where ten Spheros—milky white orbs about the size of navel oranges—sat in blue charging cradles. The leaders grabbed their Spheros and hurried with the other students to the school's former library, now known as the Digital Commons.

You tap a Sphero twice to turn it on, and it flashes three colors in quick succession; once

it has established a wireless link to your iPad or your smartphone, it strobes like a fortune-teller's crystal ball and is ready to move. A Sphero, which costs a hundred and thirty dollars, is chiefly a toy. Its "out-of-the-box experience," to use the industry parlance, is excellent. You download an app, and, by pressing and swiping and swirling your finger on your smartphone or tablet screen, you can command the ball to travel a zippy five or so miles an hour on land. It also moves in water, though much more slowly. A Sphero can make hairpin turns, and, thanks to its gyroscope, it is aware of your location; with one gesture, you can order it to roll back to you. It will vibrate softly, like a purring cat, and you can code it to do a lot of fanciful things: dance to the "Dance of the Sugar-Plum Fairy," perform playful flips, find its way around the things it bumps into, and blink if it falls over an edge. (It has an accelerometer.) Because it looks like an ordinary ball, it outperforms your expectations. The makers of the device, a company that is also called Sphero, are in Boulder, and at their offices I was encouraged to toss one of the balls out a second-story window. It bounced off the concrete sidewalk, hit my rental car, and came to a stop. As soon as we linked it up with a smartphone, off it rolled.

Spheros aren't just fun; they are also an excellent teaching tool. Students have begun using them to learn everything from geometry to genetics. They can code them, too, to take a first step into computer programming. The toy's infiltration of the classroom came about mostly by accident. Ian Bernstein and Adam Wilson, the inventors who came up with the Sphero, six years ago, were immersed in hacker culture, and they planned to disseminate portions of their code to anyone who wanted to improve on it or add to it. Eventually, they realized that if the app came with a simplified form of that code, kids would fiddle with it.

It was a fortuitous moment to create such a crossover product. The stem movement—the effort to incorporate science, technology, engineering, and mathematics into the classroom—was gaining in popularity. Educators avidly debated how to help kids transition from the analog world of early childhood to the digital world of adults. Many teachers foresaw a crisis: only sixteen per cent of high-school seniors contemplate a career in stem fields, even though the number of stem jobs is increasing rapidly. Sphero and similar toys like Lego Mindstorms—simple robots that you build and then code—have come to be seen as stops on the road to the well-salaried position of programmer.

There are objections to this framework. Putting young children in front of screens will likely make them better coders, but what will go unlearned during those hours? Education

is not merely job training. And some studies suggest that the more children interact with devices the harder time they have interacting with one another. Yet technical fixes are often seductive to educators, especially a technical fix like Sphero, whose surface has two cute blue dots and an upswept blue coif, suggesting a tiny face.

Mills's goal that day was to harness the class's ongoing study of the environment to promote some basic programming skills. The students, in their groups of three, gathered around low tables, and Mills, projecting PowerPoint slides, described a process of "design thinking" that would be familiar to any Silicon Valley entrepreneur: "Empathize, Define, Ideate, Prototype, Test." She reminded the students that feedback sessions should begin with such phrases as "I like" and "You all have done a great job with" rather than with criticism. The students' tables had whiteboard surfaces, and the children wrote down conservation goals—saving gorillas from poachers, keeping sea turtles out of fishermen's nets—and tried to ideate how a Sphero could help. "Go for volume!" Mills advised. "And include ten lines of code."

Some students seemed reluctant to leave their analog idylls. Earlier in the environmental unit, one of the groups had constructed a sea turtle out of cardboard, and a boy asked Mills for green polyester fabric to cover it. "I love that you guys want to make your turtle, but what should we be focussing on?" she replied. "What role would a Sphero play in helping a turtle avoid a trap?" Another group wanted to use Spheros to reduce smoking and, thus, air pollution. They proposed coding their Sphero to run over and crush all the cigarettes in a house. The group that hoped to save gorillas from poachers suggested strapping a banana to their Sphero; they imagined a gorilla following its favored fruit to safety. At feedback time, Mills praised the students' idea but asked them if it would be unwieldy to attach a lure to the device.

Soon, most of the threesomes had left the Digital Commons and headed into the school's large atrium, where the rasp of unspooling masking tape dominated. The children were marking out simple mazes on the carpet; the nut of the exercise was to code the Sphero to navigate a course accurately. When Mills was busy elsewhere, Spheros were often skidding and skipping and rolling underfoot—a toy is a toy—but she is a talented teacher, and when she got down on the floor to review their coding the students focussed. Afterward, Mills told me that "middle-schoolers find it surprisingly difficult to understand the correlation between a numerical value and a physical movement."

One of Sphero's design strengths is its flexibility. You can be anything from a novice coder

to a high-school computer student and still get something out of programming it. The orb's app has a dual interface. The students in Mills's class used simple drag-and-drop balloon commands to make their Spheros move, but by swiping on a button they could also see some of the raw computer syntax that lay behind the commands—in Oval, a subset of the canonical programming language C. The balloon command "Set heading 178 degrees" reveals itself to be "controlSystemTargetYaw = 178" in Oval.

The children who wanted to save the gorilla had abandoned the banana idea and now wanted to douse the Sphero with the odor of foods that gorillas crave. They taped a curving maze to the carpet. But the fun of just making a Sphero move competed against the strictures of making it go someplace in particular. The students were able to complete just two lines of code: [Start] [Roll 3 seconds].

The real world kept intruding on the experiments: there are limits to what a little plastic ball can do. In a later class, I watched Jack, a spirited boy who wore the jersey of the Colorado Avalanche's star forward Nathan MacKinnon. Jack's two companions were sick that day, so he worked alone. His project was to make a vehicle that could be dispatched quickly to natural-disaster sites—floods, earthquakes, volcanic eruptions—and provide food to survivors. The truck was a copier-paper box on wheels; Sphero was supposed to pull it. When I asked Jack if the ball was strong enough for its load, he shrugged. "Well, we're going to find out," he said.

His more immediate problem was his food supply—boxes of macaroni. Other kids had ripped open one of the packages and tossed the pasta around. Jack put the noodles back into their container. Then it turned out that he had only one caster. Mills had promised to get her hands on three more, from wherever teachers find such things. But when would this be? In the meantime, Jack attached a string to his Sphero with pink duct tape, threaded the string through a cardboard paper-towel tube, and taped the "reins" to the box. A girl wandered over to watch. Jack tapped his Sphero twice and used his iPad to connect to it. By swiping the screen, he tried to get the Sphero to pull the box, but it struggled on the Digital Commons carpet. It looked like a rodent with a pinned tail. The girl wandered off.

"Yeah," Jack told me, resigned. "Wheels are going to be necessary."

Hope and achievement sometimes coincided. That day, three students posited that they could save a koala from hunters by attaching a Sphero to its back. They created a maze

shaped like the number three to simulate a path out of the forest. Their code reached twenty lines, starting with "Roll .5 seconds at 57% of Sphero's maximum speed, direction 0 degrees," "Roll 0.4 seconds at 78% of speed, heading 45 degrees," and "Roll three seconds at 55%, course 106 degrees." After two dozen twists and turns, the Sphero, weaving and bobbing nimbly, found its way to safety.

All happy tech stories are alike: two geeks and junk food, a lucky meeting with a well-connected mentor, a product they didn't even mean to make that people turn out to want desperately. Bernstein and Wilson, Sphero's founders, were both in their twenties when a mutual friend decided that they should meet. Wilson, a Colorado Springs native, was a reformed hacker—a "black hat turned white hat," as Paul Berberian, the chief executive officer of Sphero, describes him. Bernstein was the homeschooled child of a classical guitarist in New Mexico; he had moved to Colorado for college. They were both confirmed tinkerers, Wilson on the software side, Bernstein on the hardware side. Bernstein had become an inventor when he was young. His father gave a local professor of electrical engineering free guitar lessons in return for instruction for his son, and soon Bernstein was studying with Mark Tilden, a researcher at Los Alamos National Laboratory who was interested in robots. Before getting a driver's license, Bernstein had built a solar-powered robotic orb.

One day this winter, I met Wilson and Bernstein in Sphero's research lab, an unmarked studio in a strip mall about two miles from the company's main offices. Now both thirty-two, they slouched on beanbags and told me how Sphero had come to be. Wilson had on a backward gimme cap; Bernstein wore a woollen ski hat.

One night in 2009, Bernstein was messing around with an iPhone and playing with a robot, and he wondered why the one couldn't control the other. Soon he was introduced to Wilson, then a temporary instructor at the University of Northern Colorado. Wilson remembers the first contact: "A guy comes out of the woodwork and says, 'Dude, we should be controlling robots with phones.' " Wilson disdained most phone apps—he didn't even own a phone—but he was enticed by the challenge; they agreed to collaborate.

After Bernstein's father lent them two thousand dollars, they bought an Android phone and went to work. Google had recently released a protocol that allowed Android phones to interface with non-phone devices through Bluetooth, the short-range wireless-connection protocol. Bernstein made a printed circuit board while Wilson developed software. Their first goal was to create a Bluetooth platform that permitted a phone to

control anything from home lights to a television set. It took them just a day to figure out how to use Bernstein's phone to start his car and roll down the windows.

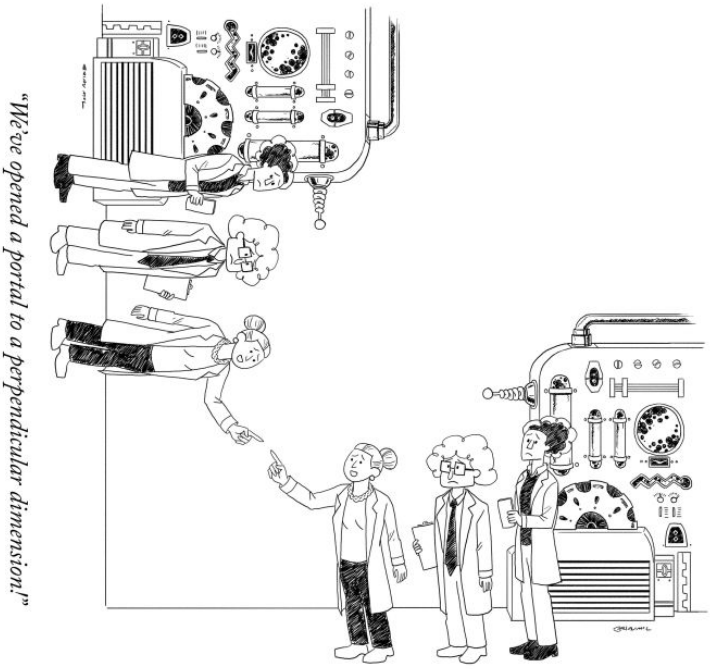
Bernstein and Wilson had skill and they had timing: the Internet of Things, which enables smoke detectors and other appliances to transmit data to the digital cloud, was just beginning to attract attention. But they did not have a lot of business experience. The tech world has ways of assisting young entrepreneurs—help with brainstorming and with attracting venture capital. In 2010, Bernstein and Wilson were accepted to a mentoring program in Boulder called Techstars. There they were told that no one would buy a Bluetooth communications platform from a couple of nobodies; they needed a product. What did they want to make? They arrived at an answer late one night. Bernstein remembers, "At, like, three in the morning, I was just like, 'We just need something simple, something I could keep in my pocket, pull it out, throw it on the table, and it does something cool.' And Adam said, 'What about a marble?' And I thought back to this robot ball I had built when I was fourteen."

Wilson and Bernstein developed a robotic ball—the original plastic shell came from Hobby Lobby—and the code to guide it using a phone. At Techstars, they met Berberian, who became Sphero's C.E.O. He was an appealing mixture of high and low, serious and larky, and he had founded or run six startups. Some had failed, but one company, a Web conferencing service, had sold for a hundred and sixty million dollars. Berberian was impressed with Sphero and its creators. "They were smart, coachable, and passionate," he remembers. "And I believed the area would be huge."

The Sphero was launched at the end of 2011. The new company shipped five hundred balls for the holidays, to mixed response. Wired.com dismissed the product as "the future of cat toys." But luck was again on Wilson and Bernstein's side. One day in April, 2012, President Barack Obama came to the University of Colorado at Boulder to give a speech on the importance of a college education. Two Sphero employees drove around the campus until they spotted yellow police tape, waited nearby, intercepted the President and his entourage, and persuaded Obama to try a Sphero. Once a phone with the app was placed in his hand, Obama quickly grasped what to do. "Give me some space to drive my ball," he called out to the crowd. "This is cool. *Whooah!*" He sent the ball whizzing into a woman's foot.

The company had fewer than twenty employees at the time, but one of them was a full-time videographer, and his camera captured the President's emerging inner boy. It was a

vignette perfectly formed for YouTube. (The clip has been viewed more than a quarter of a million times.) Soon Apple was stocking the product in some of its stores, and in 2013 a much improved Sphero 2.0 went on the market.




"We've opened a portal to a perpendicular dimension!"

The next leap came in the summer of 2014, when Bernstein, Wilson, and Berberian met with executives at the Disney Accelerator, a division of the entertainment company, which invests in new technologies. Robert Iger, Disney's chairman, showed the Sphero contingent something confidential: a picture of BB-8, a white-and-orange robot that Disney had designed for the new "Star Wars" movie, "The Force Awakens." It was a clear opportunity. Berberian remembers telling himself, "We make robot balls, and that looks like a robot ball." The main difference was that the BB-8 had a littler sphere perched on top of the main one, as in a snowman. In short order, Bernstein and Wilson had attached a smaller ovoid to a Sphero using magnets. They had a prototype. Soon afterward, Disney gave them a license to make a BB-8 toy. Models and drawings had to be stored in a locked room, and the startup raced to have the product ready by the movie's opening weekend, in December, 2015. "They can make a movie faster than we can make a toy," Berberian jokes.

Like the Sphero, the BB-8 had whimsical touches. As soon as you plug it into a charger, even before you link it to a smartphone, BB-8 swivels its head around, as if looking for its master. The tech press was smitten this time. At a demonstration of "Star Wars" tie-ins in

September, 2015, Wired.com reported that Sphero's BB-8 was "the only gasp-inducing moment of the entire presentation." The product received twelve hundred media mentions in a day. Sphero sold three hundred thousand BB-8s in its first four days on the market and quickly ran out of stock. The Creamsicle-colored robot became the most coveted Christmas gift of 2015. Last year, the BB-8 made up three-quarters of the company's sales; Sphero now has a hundred and sixty employees, and Disney has become an investor.

Play is a kind of learning, and the culture that Sphero emerged from is a teaching culture. In the winter of 2012, about a year after the toy débuted, the company invited kids to come to its offices and program a simplified version of its code. "There was a major snowstorm," Berberian remembers. "Still, fifteen people showed up, and they *loved* it. The parents loved it, too." The company held such events regularly and called the young attendees Sphero Rangers.

Teachers, meanwhile, were using Sphero alongside other tech tools such as Arduinos—circuit boards that can be used to make robotic devices. Sphero provided student worksheets and created lesson plans, and ultimately started an education division. Teachers began sharing online the most interesting activities that they'd devised: using Spheros to act like atoms; substituting a Sphero for the ball in a game of miniature golf. There were plenty of educational robots on the market, but Sphero stood out for the simplicity of its coding; moreover, unlike robotic cars, tanks, or dolls, a ball was equally inviting to boys and girls. And there were no pieces to lose. Teachers are like parents whose children never grow up, and one after another told me how glad they were that a Sphero has no extra parts.

In a bid for classroom adoption, the company began offering a discount for twelve-packs of previously owned Spheros. The company also sent free twelve-packs to some teachers in the Apple Distinguished Educator program—in which the company recognizes teachers who have done innovative things with its products. According to Sphero, since 2014 it has sold robotic balls to more than a thousand schools; it estimates that more than a hundred and fifty thousand students have used them. The Sphero now has four iterations. sprk is a transparent version, permitting children to examine the machinery that powers it. Ollie is shaped like a barrel with treads and, to the surprise of your pets, it can go fourteen miles an hour.

"I love the Sphero and have one in my classroom," Vicki Davis, a technology instructor

from Georgia, wrote last year on her blog, Cool Cat Teacher, adding, "Happy Hour of Code week!" Coding can be tedious for novices, and teachers like Davis see robotic toys as a way around this hurdle. As children, many of them had slogged through educational programming languages such as Logo, which, like Sphero, emphasized directional commands, but offered half the fun: instead of moving a ball around a room, you directed a turtle around a screen. These teachers, who have Twitter handles like @apptasticteach and @MrJTechCoach, now write and share programs that make Spheros pull tiny chariots and knock down bowling pins. Jon Corippo, an education-technology consultant in California, told me that Spheros have a stealth quality: when students use them to replicate the motion of the planets or delineate complex geometric shapes, "they don't realize that they're doing really advanced math." An elementary-school class in Wisconsin built a Sphero "solar system" that was displayed at the White House one night last year.

Many schools wouldn't be able to pay for Spheros were it not for the money that stem and related initiatives provide. In some ways, the guiding concern of stem—that other nations are outcompeting the United States in the race to educate new engineers and scientists—is merely a revival of the worry that followed the Soviet Union's launching of the first Sputnik satellite, in 1957. But stem is also a response to fresh anxieties. In the aughts, researchers observed that many American students were initially enthusiastic about science and math but eventually lost interest. Moreover, though girls do well in math and science, they tend not to end up in coding jobs, and many students of color don't have access to adequate tech facilities. "Right now, it's mostly white and Asian men," Ruthe Farmer, of the National Center for Women and Information Technology, told me. "We're not tapping seventy-five per cent of the population."

American education also tends to be stovepiped: you learn English from English teachers, math from math teachers, and biology from biology teachers. A stem curriculum is predicated on the notion that the best teaching is interdisciplinary, because similar patterns of thinking underlie many subjects and integrating them makes students smarter. Taking a sculpting class can help researchers understand protein folding; a course in storytelling can aid doctors in communicating with patients. A stem class in English might use computer algorithms to explore literary style. Richard Perry, a high-school teacher on Long Island, has his students code Spheros to trace the path of the Joad family in "The Grapes of Wrath." Along the way, the children write down observations about what their "arduous virtual trip" from the Dust Bowl to California feels like. "The robots allow the students to get into the heads of the characters through direct tangible experiences,"

Perry told me, in an e-mail. Many Sphero teachers buy a Nubby—a bumpy ball cover that allows students to dip their Spheros in paint and leave a literal paper trail. Teachers often compare the results to a Jackson Pollock. (No one mentions Michelangelo.)

Even in a time of tight education budgets, stem funding is plentiful: the federal government currently contributes three billion dollars a year to stem-related curricula. (The Spheros I saw at Trail Ridge Middle School were paid for with funds from a Race to the Top grant that has a stem focus.) Last year, the city of Boston declared itself committed to giving all its middle-school students access to "high-quality stem experiences."

Not everyone who is interested in children's education is impressed by the stem concept. Does Sphero actually make Tom Joad's frustration more visceral or just help you through a reading assignment that doesn't much interest you? In a field that loves data, the benefit of moving young children from tactile experience to the world of screens is unclear. After all, Steve Jobs wouldn't allow his children to use iPads, steering them instead toward books and conversation. Bernstein, by contrast, told me that if he had children he would definitely encourage them to be online. "Everything I know I learned from the Internet," he said.

Even within the tech field, some people are skeptical of stem's voguishness. David Wells, who runs a Maker Space, a high-tech version of a shop class, at the New York Hall of Science, told me, "When I hear people say, 'I want stem learning,' I think, What does that mean, exactly?" He does not see much new in its cross-disciplinary emphasis: "If you take a look at educational theory through the ages—Dewey, Vygotsky, Freire—they all say that independent thought influences the creative process." Moreover, the concerns about a shortfall in tech workers may be overblown: last fall, thirty-six per cent of undergraduates at the University of Texas at Austin were majoring in stem fields; at Stanford, computer science is now tied with biology as the most popular major for women. Nevertheless, stem, with its combination of the high tech and the vocational, is likely here to stay. The stem educator has become a familiar figure in schools, with some of the cool of a guitar teacher in the sixties.

stem has bipartisan political support. Many high-paying jobs in the future economy are expected to be in fields where technical expertise is valued, and, appealingly for fiscal conservatives, the expertise could be taught without the inconvenient cost of a liberal-arts curriculum. In other words, stem may lead to the revival of the trade school. Steve

Robinson, a former education adviser to the President, told me, "The Republicans have been opposed to pretty much everything Obama has done, but less opposed to things in the stem areas."

As I watched children play with Spheros and other robotic toys, the debate over stem seemed obsolete. The question of whether to integrate the digital more fully into children's lives has already been decided, and not just because so much time outside school is spent in front of screens. For many kids, the boundary between analog and digital no longer exists. Adults like to make distinctions; childhood is lived as a continuum.

In April, I visited the Academy of Our Lady of Peace, a small Catholic school in New Providence, New Jersey. The archdiocese had bought a dozen Spheros to circulate among its schools, but Our Lady of Peace got the funds to pay for its own from a private donor. The balls are locked up in the computer lab, like children in a Grimms' fairy tale, but one of the days I visited, four students had the opportunity to fool around with them in a long hallway by the art classroom. The children were trying to get their Spheros to go thirty feet down a hallway, loop under a track hurdle that had been borrowed from the gym, then return to the starting point. There was a cheat: they could just drive them with their fingers, using the preinstalled software. Sometimes the children did this, sometimes they coded. They flitted in and out of the two without particular concern. Meghan, a fifth grader, smoothly pulled down commands and got her Sphero to roll, execute a nice circlet, and come back. She also programmed it to light up in different colors to make it "pretty."

Kieran, a sixth grader, boasted, "Coding is my second language." At home, he uses Scratch, a drag-and-drop programming language, and does animation with judo, a simplified version of Java. His regulation white button-down shirt was untucked, and it hung below his regulation navy-blue sweater vest. Kieran's face glowed as he added commands with easy swipes; he clearly had the gift. He set his Sphero to go, but it stopped well short of the hurdle. "I will get this," he said. "I think I got it. I think I got it. Nope? O.K." He began furiously editing his program. The route could be navigated with just three commands, and, looking over his shoulder, I saw that he had put in a bunch of extraneous steps. He explained that this was deliberate. He was trying to fashion a more winding path through the course—another kind of pretty. Kieran never did quite find the flaws in his program, but a few days later he and Meghan met in the gym and shared a Sphero. Meghan controlled the iPad, and Kieran suggested additional commands. Coding

was at once thought and gesture. Was it playful coding or code-filled play? Together, they got the ball to roll to the gym wall more than a hundred feet away, while changing colors constantly. They kept refining the steps, chasing their Sphero down and doing it over again. I had brought a BB-8, and the two robots did a nice minuet at mid-court.

In February, at the annual Toy Fair held at the Javits Center, in New York, Paul Berberian trawled an area reserved for tech products, affably examining displays of MaKey MaKeys and Cubelets. "There's a ton of drones," he said, as one launched in front of us. "But at the end of the day how do you differentiate between them?" He liked Kamigami's battling robotic bugs, whose movements were based on real insect motion. "You guys have done a great job," he told the employees at the display. "I'll come back and chat." At another booth, someone asked Berberian about Sphero's funding. "We've raised, like, ninety million dollars," Berberian said. He added that BB-8 had changed everything: "We don't need any more money!"

Berberian may not need money, but he does need something new to sell. You can't sustain a company with one successful product—not even with four versions of that product. What does Sphero want to be when it grows up? Berberian noticed a huge poster of Edwin the Duck, a bathtub toy with simple programming tools. "It's kind of bringing connected play all the way down to two-year-olds," he said, impressed. The manufacturer calls Edwin "a duck with personality," and that's what interested Berberian most. He wants to start building robots that forge an emotional attachment with their owners. Sphero encourages users to name their orbs, and the children I saw playing with them clearly regarded them as more than machines. "BB-8 is greeted like a class pet, a hamster or turtle," Chris Schmitz, a teacher in Erie, Colorado, wrote to me. Such bonds, he said, promoted learning. He told me about a difficult kindergartner in his class who, when he first saw Schmitz playing with a BB-8, greeted it "like a long-lost friend." Schmitz went on, "He was very gentle toward BB-8, and he wanted to know how I made BB-8 go around my legs. This led to a conversation about the program, and then he wrote a program of his own." Last month, I visited a San Francisco school and watched two second graders play with Dash & Dot, a pair of robots that have anthropomorphic features. After programming them, one girl set them face to face. "I'm going to make them kiss," she said.

To promote this sort of connection, Bernstein and Wilson have hired experts on humanlike computer interfaces and natural languages. (One young employee's job description is

"Robot Brain Architect.") And at Sphero's headquarters a veteran gaming programmer is creating backstories for future products. The first one, out in the fall, will be a robotic incarnation of a well-known comic-book superhero. Berberian promises, "You'll be able to bring him into your home and have a conversation with him where he engages and asks you questions and starts to learn about you."

For Sphero, this is just a beginning; it wants its robots to not only learn your needs but communicate their own. Bernstein told me that he wants their next brainchild to become the friend you call on to listen to your problems or help with your homework. His models are the beloved robots of the movies, like Johnny Five, from the 1986 film "Short Circuit," and Wall-E, the winsome trash-collecting robot from the 2008 Pixar movie. "It's gotta become part of the family," Berberian said. "And, by becoming part of the family, it has to know its environment and know the people in the family, and change its behavior based on who it's interacting with." Pixar is routinely invoked as a model at Sphero. "We're not trying to make a robotic pet," Wilson points out. "We're making a pet robot, really. They'll come with a brain and a past." When I told Bernstein I'd like such a robot as long as I could turn it off, he smiled a gentle smile. If their robot was successful, he answered, I'd feel bad if I did. ♦