



**THE
EDUCATION
ISSUE**

5 BIG IDEAS

**THAT JUST MIGHT TRANSFORM
THE CLASSROOM.**

Illustrations by **SEBASTIEN THIBAUT**





TAKE THE REALLY LONG VIEW

1 WHEN David Burzillo's students arrived for his high school class this September, they started talking about the big bang. Then they moved onto the formation of the stars polka-dotting the night sky. These are not topics students were used to learning in a typical history class.

Then again, nothing about Burzillo's course—part of the groundbreaking Big History Project—is typical. The curriculum reaches further back than any course of its kind, covering everything from the formation of Earth to the evolution of life to the Industrial Revolution to the European debt crisis.

Of course, that's a considerable time span for students to cover in one school year—13.7 billion years, more or less—a feat made possible by a largely historical, rather than scientific, focus. "We're taking the best evidence from physics and the best evidence from chemistry and biology, and we're weaving it together into a story," explains Burzillo, who teaches at the private Rivers School in Weston. "They're not going to learn how to balance [chemical] equations, but they're going to learn how the chemical elements came out of the death of stars, and that's really interesting."

The history of the Big History Project goes back only about two decades. That's when an Australian expert in Russian history, David Christian, decided that budding historians needed a broader context to make sense of their individual specialties. He knew a big picture existed but that it was often overlooked by academia.

"There ought to be a whole of history somewhere, but no one really teaches it or talks about it," Christian says today. So he developed a college-level course cover-

ing it all—from the first blast of energy that started the universe to the skyscrapers lining our city streets. "If you say to [students], 'Let's have a go at taking an overview of the whole damn thing,' as crazy as that sounds," he says, "they're going to have a road map, they're going to see how everything fits together."

Christian's lectures eventually caught the attention of Bill Gates, who approached him with the idea of introducing a similar course into high schools. Planning started 2½ years ago, and last year the program was piloted at eight schools—including the Rivers School with Burzillo. This year, more than 3,000 kids in roughly 50 high schools worldwide are participating in the pilot's second phase.

In Big History classes, students engage with the course content through an interactive, video-heavy website; no textbook required. Burzillo believes this sort of approach lets students learn, rather than simply memorize facts. They understand why stars can power themselves for billions of years or why the agricultural revolution allowed for our modern society.

Big History promotes examining evidence, thinking critically about how we know what we know, and looking at problems from an interdisciplinary perspective—valuable skills for a generation growing up in a world of climate change, disease, and global economies.

"All the interesting questions that need to be answered—or that people want to answer—about life, the future, whatever are going to involve collaboration between different disciplines," says Burzillo. "This course . . . shows how that collaboration can take place."

—Stephanie M. McPherson



THE EDUCATION ISSUE



HEY, KID, GET A JOB!

2 For three years in a row, 100 percent of the seniors graduating from Cristo Rey Boston were accepted to four-year colleges, even though a majority of its students qualify for free or reduced-price federal lunches, two-thirds are being raised by single parents, and the average family income among students is just \$26,000 per year. Part of a network of 25 Catholic high schools across the country, Cristo Rey's work-study program, which begins freshman year, gives children from lower economic rungs opportunities similar to those of their better-off peers by cutting the \$10,300 cost of tuition by 60 percent; private funding covers another 30 percent, so parents end up paying \$1,130 a year.

Cristo Rey students work five days a month in a corporate environment. "Most of these kids have never been in an office," says Jeff Thielman, the Dorchester school's president. "The work-study program motivates them to stay in high school and go on to college, because they're interacting with all sorts of professionals who have degrees. They're seeing these people work and saying, 'I don't want to be the person doing the

filing the rest of my life.'"

It worked for Phillip Benevides, who was valedictorian of his class at Cristo Rey in 2011 and is now a sophomore at Georgetown University in Washington, D.C. When he started in the medical records department at Mount Auburn Hospital in Cambridge his freshman year, he thought he wanted to work in theater—but now he's changed his mind. "After three or four weeks I just fell in love with it," he says of his hospital work. Benevides has to declare his major at the end of this academic year, and he's now seriously considering the medical field—possibly a career in pharmacy, nursing, or psychology. But even more than achieving the considerable goal of giving him career options, Cristo Rey's work-study program helped Benevides grow up. "The first day I went in to Mount Auburn," he recalls, "I was this scared little freshman who had no idea what I was doing, no idea what to expect. By the time I left, I was like 'OK, interviews are not that hard; having meetings for work—piece of cake.' And if I wanted to find another job, I just needed to have the confidence to go out into the world."

—Elizabeth Gehrman

STAY IN SCHOOL (LONGER)

3 THOUGH KIDS MIGHT feel like they spend half their lives in the classroom, the fact is that over the course of a year, school takes up only 20 percent of the hours children are awake. For kids from well-off families, say advocates, especially those with college-educated parents, homework plus, arts programs, learning-based summer camps, tutors, and town-sponsored sports teams supplement the three R's. The vast majority of children at or below the poverty line, however, have difficulty completing their homework, according to the Center for Public Education, and have less access to structured extracurricular activities. Studies have shown that both increase learning and lower dropout rates.

"By far the biggest difference in the lives of kids from these two groups is what's happening outside of school, not inside," says Chris Gabrieli, founder



of Mass 2020, an initiative that aims to extend educational and economic opportunities for Massachusetts children and families.

If disadvantaged students' lives outside the classroom aren't as well rounded, Gabrieli reasoned, why not give them enrichment during the school day? His organization is leading an effort to add up to 50 percent more school time to the average kid's day—say, from 7:30 a.m. to 5 p.m. Monday through Friday, along with 18 Saturdays a year and a month in the summer. Nineteen schools in Massachusetts have adopted at least part of the program, and more are adopting it nationwide.

Kids who need help in a certain area are given extra time with an instructor, and all kids take electives, from sports to drama club.

—E.G.

KEEP THE BOOKS HANDY

4 A DIGITAL revolution is coming soon—to your child's backpack. Boston-based Houghton Mifflin Harcourt, which publishes about half of the textbooks in the country, in August teamed up with Kno, a software company in Santa Clara, California, that creates interactive digital textbooks for college students, to bring the idea to parents in the K-through-12 market. The 200,000 or so titles now available in subjects ranging from philosophy to calculus to French offer interactivity, cross-platform use, and enhanced content like video, simulations, 3-D renderings, annotations, bookmarks, and ad-free links, at a cost of \$5 to \$125 per book, depending on the text.

Besides that content, the big plus, says HMH's executive vice president for strategy and alliances, Tim Cannon, is access. Because a given book's data are held in the cloud, a student can leave his textbook at school and still pick up reading where he left off on his iPad during the trip home in the

car, switch to his mother's smartphone while waiting for dinner, and then finish his assignment on the desktop in his bedroom. "You can see everything you've done with the previous two devices," Cannon points out.

An added benefit is that kids

don't have to lug a huge pile of books back and forth between home and school. "I weighed my fifth-grade daughter's backpack and it was 27 pounds," says Kno CEO and cofounder Osman Rashid. "She weighs 60." Even if their children's schools have not gone

digital, parents may be able to get digital versions of the books their kids are using in class; leaving the textbook at school completely eliminates the backpack. "The people who are going to hate us the most," says Rashid, "are chiropractors."

—E.G.



STOP SUMMER'S BRAIN DRAIN

5 ONE OF THE BIGGEST differences in learning between children from privileged backgrounds and those who are disadvantaged doesn't take place during the school year at all. Students in the former category might spend their summers taking karate, visiting the library with a parent or sitter, and learning about history during family vacations. Kids in the latter category often miss out, and studies have shown that ignoring skills learned in the school year comes at a price. Students can lose up to three months of skills before school starts again in September, and once they're behind, they tend to stay behind.

Building Educated Leaders for Life (BELL), a national nonprofit founded 20 years ago and based in Boston, has figured out a way to change that. It gives the highest-needs kids from the highest-needs schools six weeks of project-based academics with a district's best teachers in the morning, along with enrichment activities in the afternoon and field trips on Fridays.

Does it work? BELL's standardized evaluation tests revealed that during BELL Summer, scholars across the country increased an average of 10 percentile points in both reading and math, significantly shrinking the gap between their academic performance and their peers' performance. And that's one BELL a lot more people would like to hear ring.

—E.G.