A young girl with brown hair tied back, wearing a blue t-shirt, is smiling and looking down at a project. A boy with dark hair and glasses, wearing a green shirt, is leaning over her, also looking at the project. They are working on a wooden base with a cardboard tube and green tape. The background shows a window with white frames.

STEM: BUILDING 21st CENTURY CITIZENS

ANNUAL REPORT
2017

**SCIENCE
BUDDIES**





*Kenneth Hess,
President & founder of Science Buddies*

SOME THINGS ARE ELEMENTAL

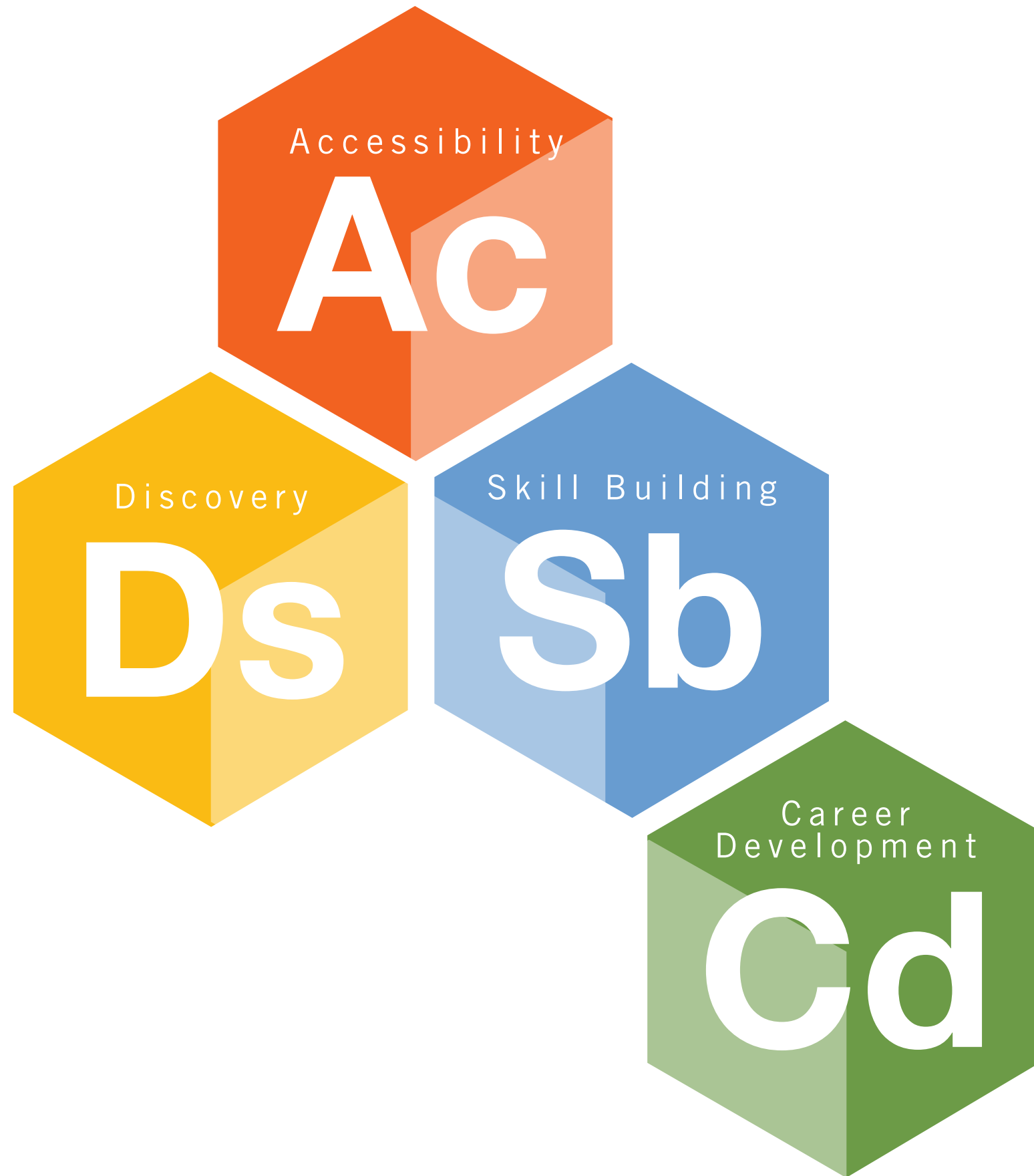
I come from a long line of technical minds: my ancestors were locksmiths, railroad mechanics, engineers. Like me, my daughter was exposed to science, technology, engineering, and math (STEM) from a very early age. It wasn't until one of her first science projects, though, that I realized just how lucky Amber was to have an engineer for a father.

Every year, 10 million students are assigned a science project. Before Science Buddies, most of them didn't have the basic elements required to set them up for success: no kid-friendly tools and no resources that connect scientific learning to their own lives in a fun and approachable way. I watched these kids struggle alongside Amber, and I had an idea.

When I started Science Buddies in 2001, I wanted to level the playing field, so *all* kids could succeed—not just those with science in their veins. Science Buddies' goal is to inspire and educate students of all ages with STEM experiments and explorations that reflect their unique personal interests. Our vision is to develop scientist-authored, high-quality explorations for every significant area of STEM, from the classic areas of science to the cutting edge, across a wide range of student experience and learning environments. To accomplish this, we've spent more than a decade developing and delivering programs that break down the barriers to credible scientific resources, ensuring that millions of children have the chance to experience the joy of exploring the unknown and making new connections that define—and redefine—the world around them.

Science Buddies has now reached a critical juncture, as the need for credible STEM content grows more quickly than we could ever have anticipated, and as we develop compelling new ways to use technology to deliver it. While we celebrate our accomplishments thus far, we look forward to an even stronger, more sustainable Science Buddies that brings the critical elements of STEM literacy to millions more students, teachers, and parents around the world.


Kenneth Hess
President & Founder



THE BUILDING BLOCKS OF STEM SUCCESS

Today's global citizens face an increasingly demanding set of challenges—and those challenges demand a new generation of problem-solvers. Some of these challenges are personal: How often should I exercise? How will I earn my living? Some are communal: How can we ensure clean drinking water for everyone who needs it? Where will we invest our human and financial capital? Science literacy forms a foundation on which these problems can be solved.

In 2017, Science Buddies reached 16.7 million inquisitive minds around the world with our free STEM programming. Our impact is built on the fundamental building blocks of universal accessibility, the thrill of scientific discovery, skill-building that lasts a lifetime, and practical career development. With these elements in place, we're equipping the next generation of students with the skills and knowledge required to become truly engaged citizens of this 21st century.

See Science Buddies' first project ▶

Accessibility

Ac

MAKING STEM ACCESSIBLE

In the late 1700s, African-American astronomer Benjamin Banneker was pulled out of his rural school to work on the family farm. A century later, Marie Curie was banned from higher education as a woman. Both managed to find the support and resources they needed to contribute to our fundamental understanding of the world. Just imagine if they hadn't. Yet today, thousands of kids still miss out on critical learning opportunities simply for lack of access to educational resources or limited means. That's why our programming is designed to bring STEM to kids from all walks of life, whoever they are and wherever they happen to live.

HELPING KIDS EVERYWHERE CLICK WITH SCIENCE



Every year, millions of kids from all over the world visit sciencebuddies.org, where they explore free science programming designed to launch and sustain their STEM journey.

REACHING THE COUNTRY'S K-12 STUDENTS*

11m

Unique U.S. visitors to
sciencebuddies.org

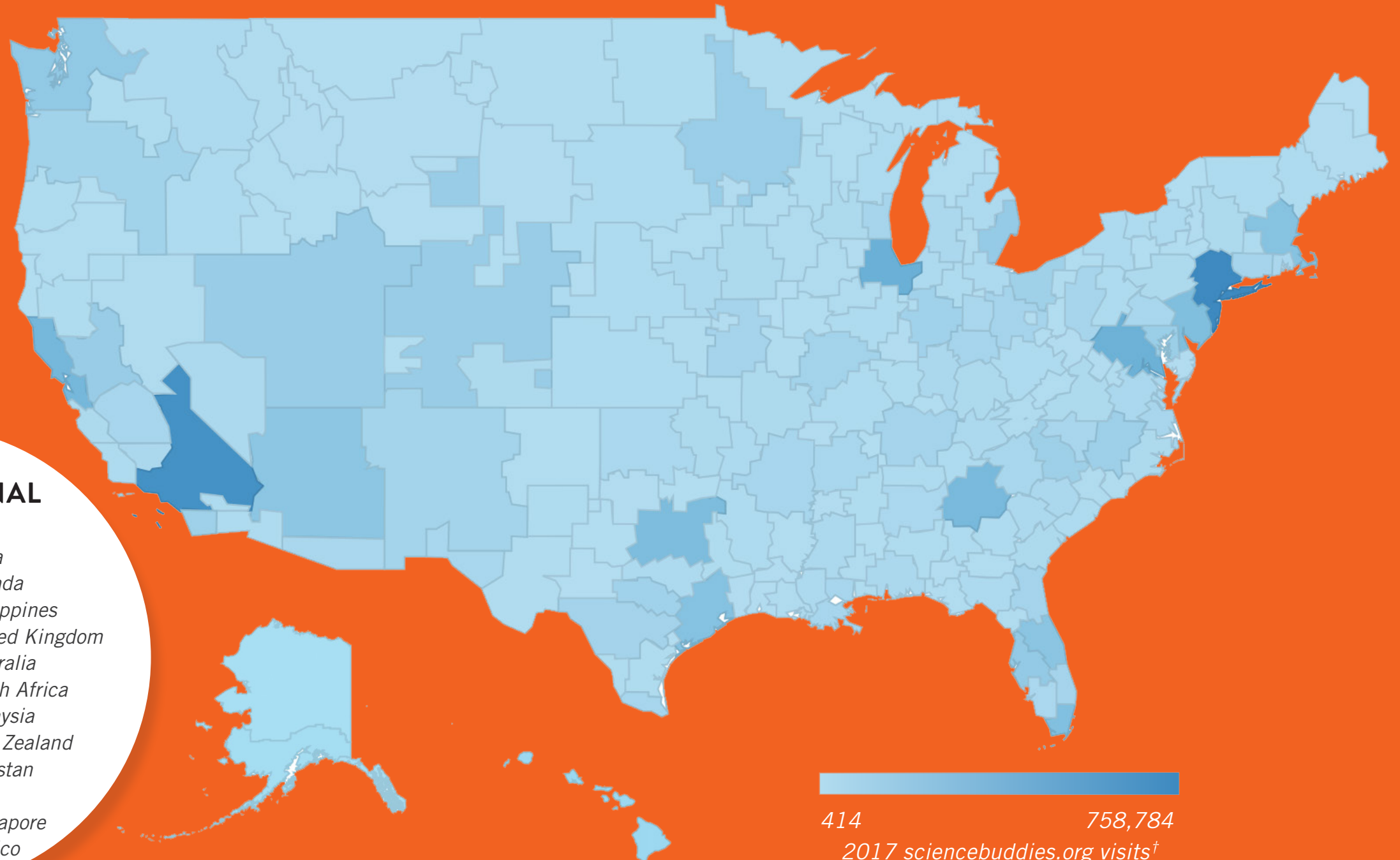
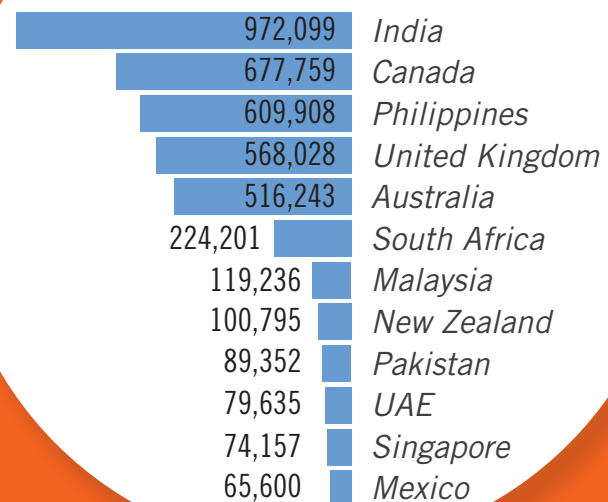
55m

U.S. K-12 population

2.4m

Justin Timberlake's
latest album sales

INTERNATIONAL REACH



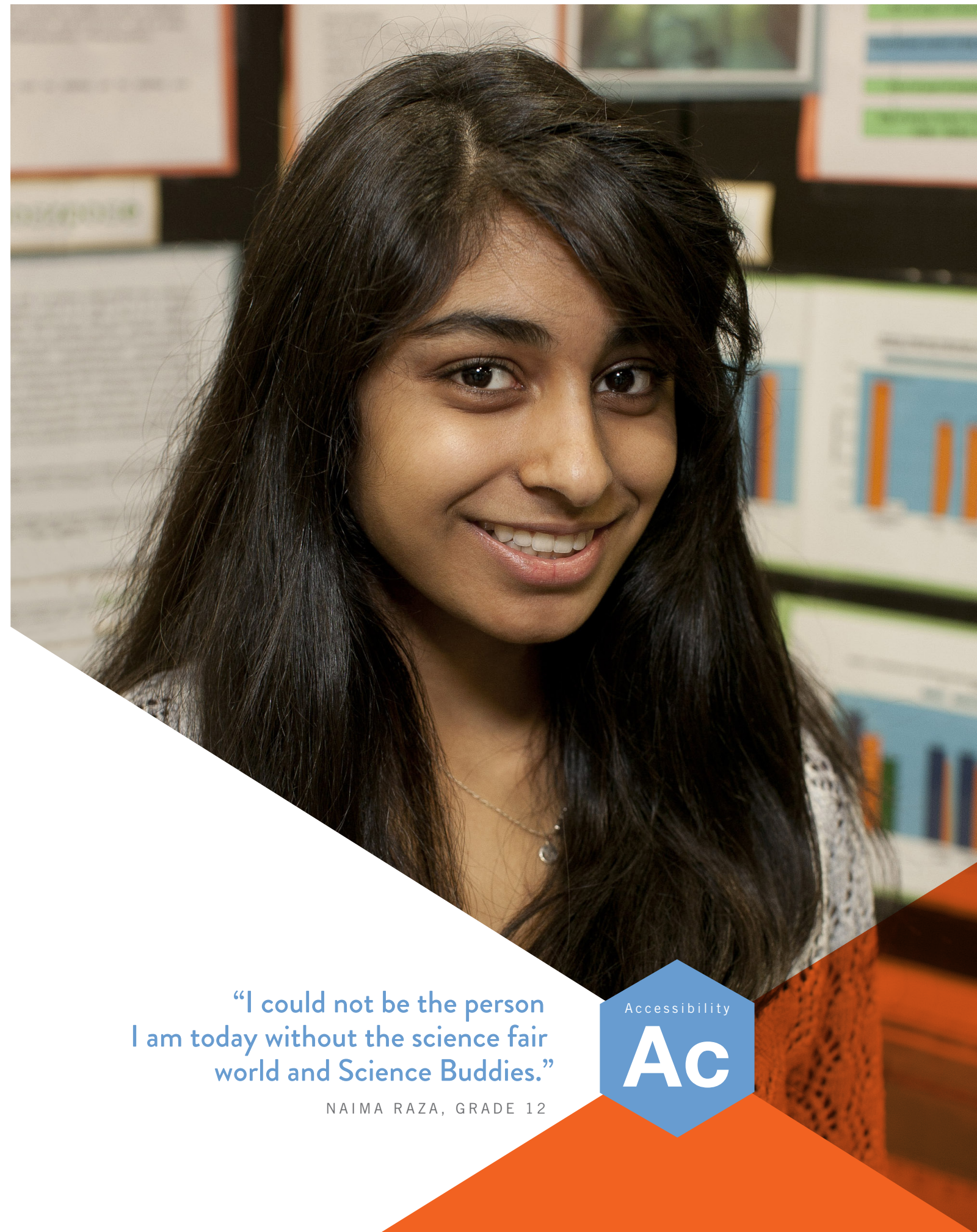
NO LAB? NO PROBLEM

Naima Raza's mom and dad wanted their daughter to have access to the best education possible. But when they looked for opportunities to get Naima hooked on science, they found there wasn't much available, even in their mid-size community of Sarnia, Ontario. Eventually, they found a local science fair and talked her into giving it a shot. It worked—she was hooked. There was only one problem.

“Now I'm motivated,” she remembers thinking. “But what next? How do I start?” Like most kids, she went online, searching for “science fair projects.” That's when she discovered Science Buddies. “It really allowed me to see what I'm actually interested in...I could explore existing projects and find a way to be innovative and adapt them.” Naima showed immediate promise, using Science Buddies to explore projects well beyond her grade level as she moved into her teens.

But even with the smarts and desire, Naima hit yet another roadblock when she entered high school. “As I got older, I found that I kind of had this disadvantage because I didn't have a professor's lab to work under.” Between Science Buddies' *Ask an Expert* forum and advanced project support, “I was able to work around that” she says.

Today, Naima heads up BSI Gen Y, a student-led initiative that empowers her peers to contribute to a sustainable hometown community. So how does a local kid become a community leader? “I could not be the person I am today,” says Naima, “without the science fair world and Science Buddies.”



“I could not be the person
I am today without the science fair
world and Science Buddies.”

NAIMA RAZA, GRADE 12



A LAB IN EVERY HOME

KITCHEN CABINET CURIOSITIES

Not every student has a science-minded parent at home or a hands-on curriculum in the classroom. That's why Science Buddies just released dozens of *Science Activities*, bite-sized science projects perfect for a rainy day or an afternoon over school vacation. It's also why the vast majority of Science Buddies' nearly 1,200 *Science Fair Projects* can be done with common household items. Because parents shouldn't have to struggle to teach their kids science.

SCIENCE KITS DELIVERED TO YOUR DOOR

Eventually, of course, even kid scientists need professional tools and materials to graduate to the next level. But like Naima Raza, many kids don't have access to an equipped lab at school. Science Buddies' new *Science Kits* offer an affordable way for kids to experiment and learn, from building their own magic bullet train to exploring crime scene chemistry like the forensic experts on CSI. The kits do more than bring STEM to life for thousands of students; they allow students to conduct real-world experiments with real-world tools, right where they are.

[Browse our Science Kits](#) ▶



Just a few of the components available in our popular Science Kits are shown, opposite.





COUNTING ALL KIDS

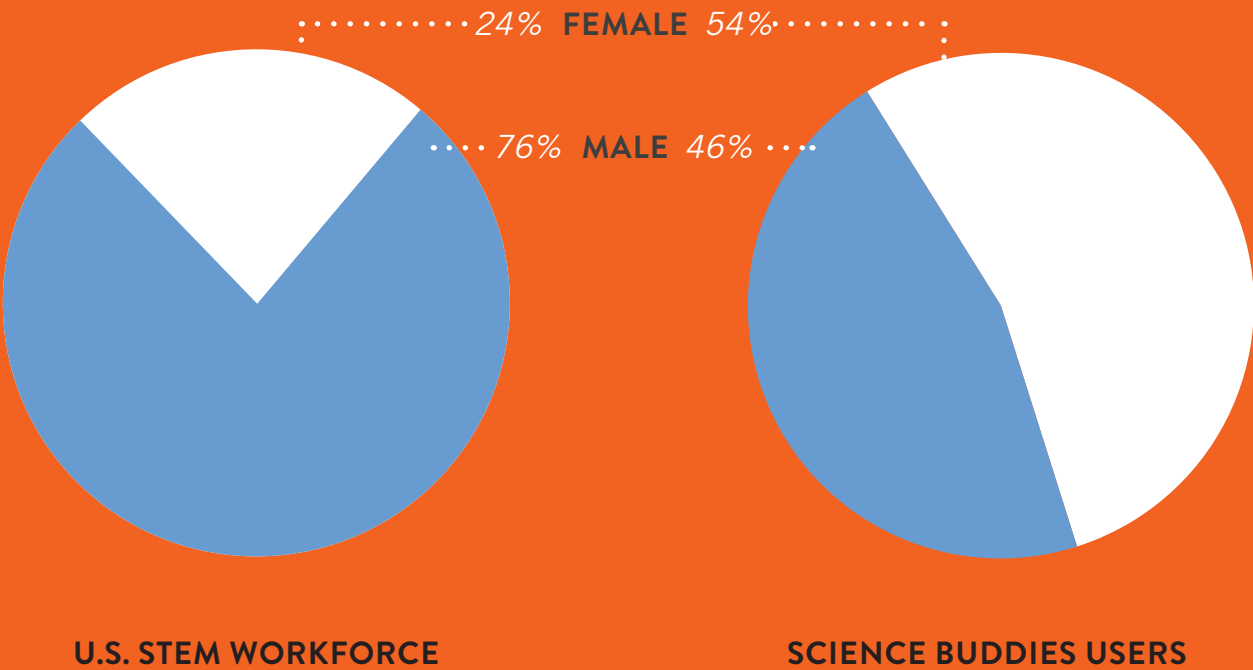
Science Buddies strongly believes that *all* kids should have access to scientific learning, regardless of gender, ethnicity, or socio-economics. This is especially important given the dearth of underrepresented populations in today's STEM workforce.

By delivering online resources designed to foster scientific learning—and keeping them completely free to students, parents, and teachers—we're able to attract and engage a truly diverse population of users critical to the future of STEM.

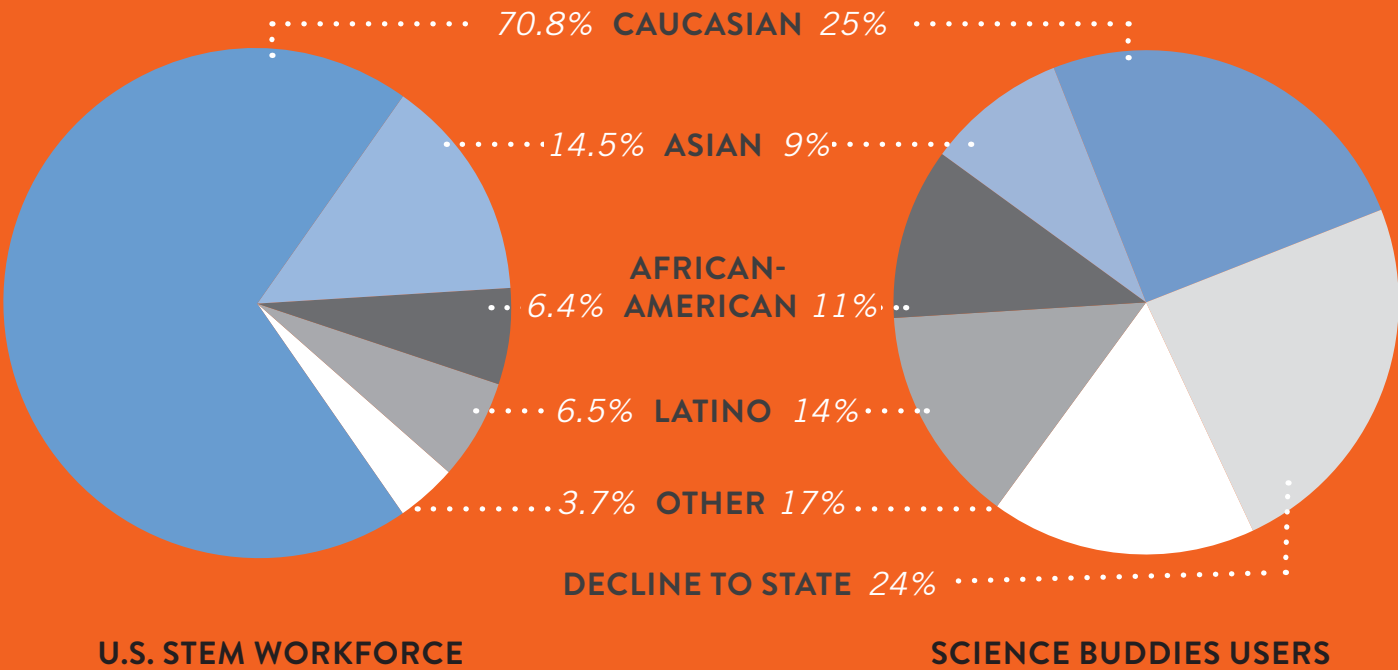
“We want a diverse workforce, and it’s our job to have an influence on that pipeline. There’s so much talent in those schools—the Title I schools, the under-resourced schools. Science Buddies allows us to tap into those students.”

JAIME BARCLAY
PROGRAM MANAGER, CORPORATE RESPONSIBILITY AT SYMANTEC

GENDER



ETHNICITY



Discovery

DS

INQUIRING MINDS WANT TO GROW

As scientists ourselves, nothing excites us more than watching students learn *how* to learn. Science Buddies' hands-on, highly personalized programming teaches students how to ask questions and think critically. How to observe their world and to welcome the unexpected. It's the kind of engagement that stays with students as they grow into adulthood, and it's how the greatest discoveries—scientific, personal, and cultural—are made.

REACHING KIDS AT A CRITICAL AGE

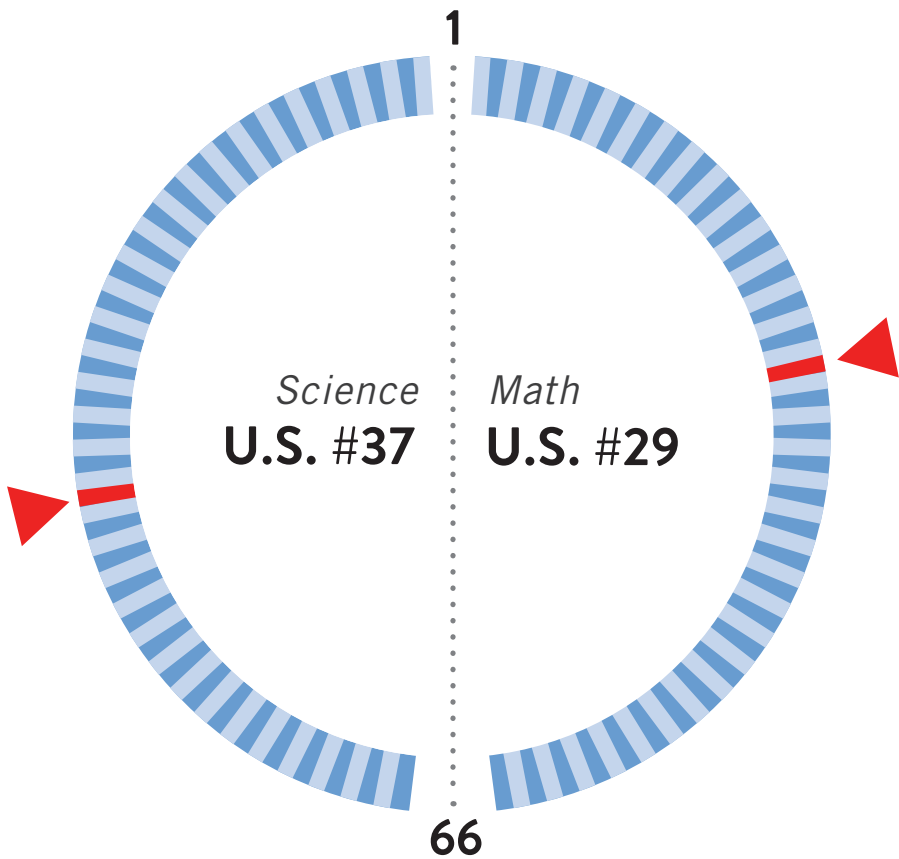
It’s no secret that American students are struggling to keep up with the rest of the world when it comes to math and science. Staying globally competitive is critical. But science literacy also sparks innovation, cultural exploration, creativity, and so much more. By reaching kids early, Science Buddies is helping to close the gap.



“This is the critical window. If you don’t address science literacy at this age, you’re going to have far bigger problems trying to correct for it down the line.”

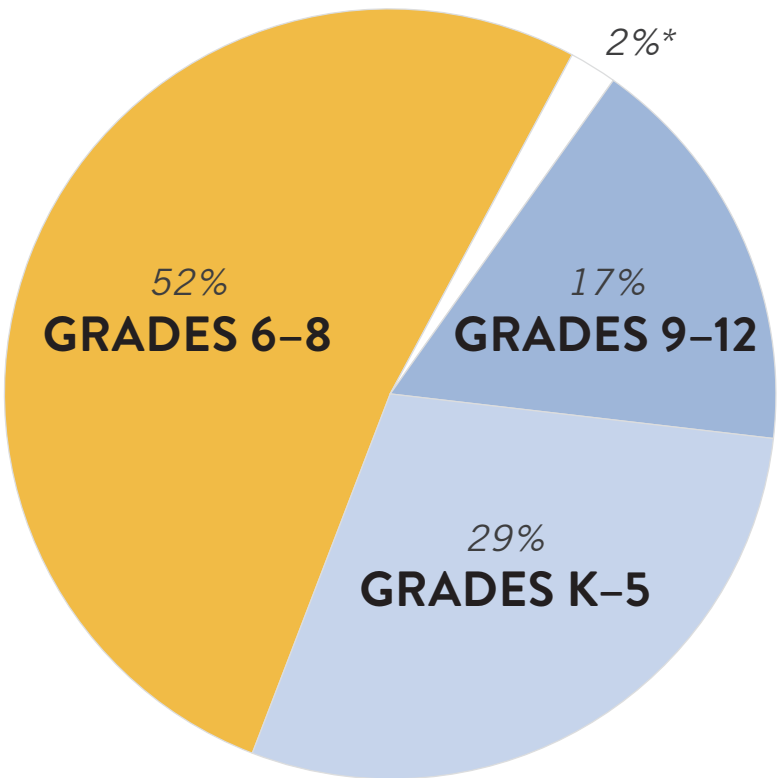
DR. TEISHA ROWLAND, STAFF SCIENTIST, SCIENCE BUDDIES

U.S. STUDENTS LAG IN SCIENCE & MATH LITERACY



Science and math literacy of 15-year old students, ranked by country
Source: Programme for International Student Assessment (PISA) 2012

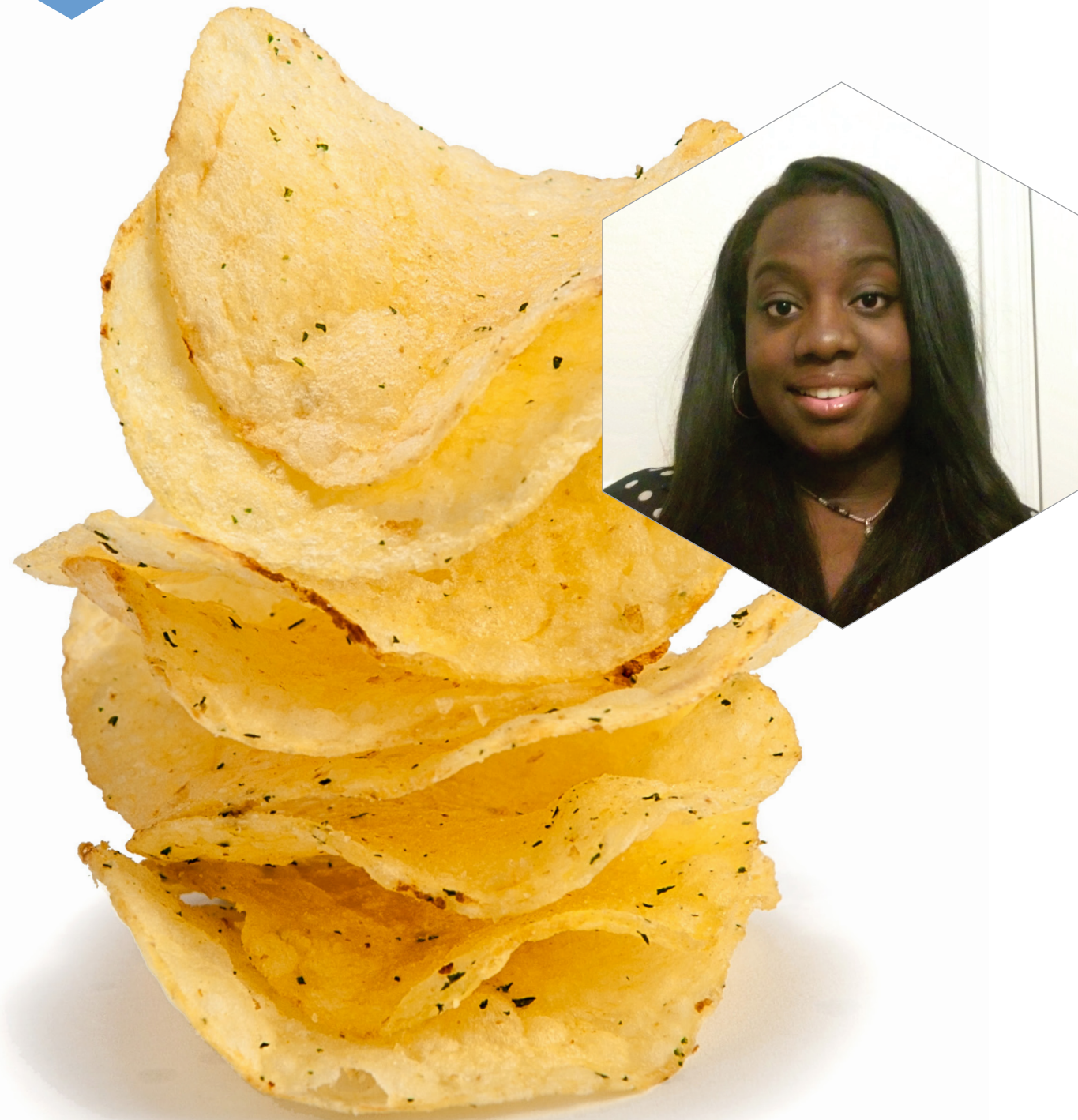
WE REACH KIDS WHEN IT MATTERS MOST



Age of sciencebuddies.org Topic Selection Wizard registrants
*Adult users

DISCOVERY

Ds



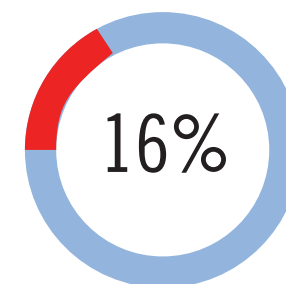
BET YOU CAN'T STOP AT JUST ONE

Jennifer Metu got her first taste of competitive science fairs in the 8th grade, when she conducted a Science Buddies experiment measuring calories in potato chips. “I knew I wanted to do something in healthcare but I’m just in 8th grade,” she remembers thinking. “How can I do a project like that?”

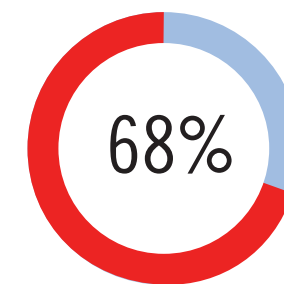
The potato chip experiment didn’t bring home a medal that year, but it gave Jennifer something better: a new passion. “That’s when I realized I was really into science,” she says. With help from Science Buddies’ *Topic Selection Wizard* and *Ask an Expert* program and more, her next experiment tackled microbiology—bacterial transformation and resistance to antibiotics, to be exact. And her science fair experience would never be the same.

Over the past few years, Jennifer has competed in more than half a dozen science competitions, including participation at the Intel International Science & Engineering Fair (ISEF), one of the highest honors in the science fair world. Now a senior in high school, she plans to major in microbiology in college. Jennifer’s not alone. By making science fairs a positive experience for thousands of students like Jennifer, Science Buddies starts kids on a path of lifelong STEM learning and discovery.

WE HELP KIDS LOVE SCIENCE



U.S. high school seniors
interested in STEM career*



Science Buddies students reporting high
enthusiasm for science post-project†

Sources: *www.ed.gov/stem. †2017 Student Survey

FROM OVERWHELMED TO FULLY ENGAGED

Approximately 10 million students are assigned a science project every school year across the US, and the first problem each of them faces is selecting a topic. This moment is a pivotal one for them; will they get overwhelmed and discouraged, or will they find the support they need to truly engage with scientific principles and, ultimately, succeed?

When a student does an internet search for “science projects” (go ahead, give it a shot), one of their first results will lead them to Science Buddies. Our carefully designed *Topic Selection Wizard* poses a unique set of questions that help students hone in on a project that appeals to their own personal interests and learning level. By meeting kids where they are, we engage them more deeply to ensure successful learning. Because kids learn best when they’re having fun.

Try Science Buddies’ Topic Selection Wizard ▶

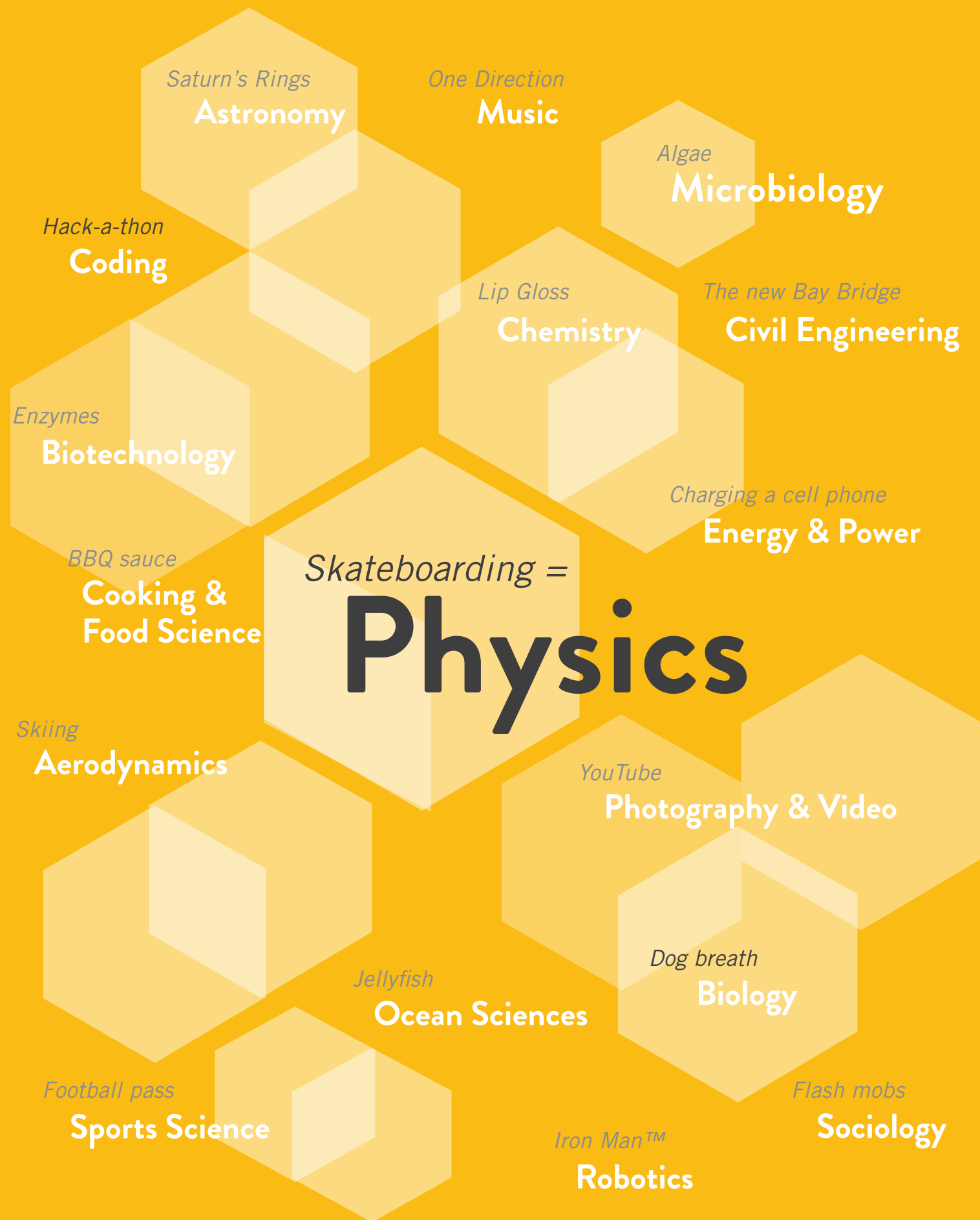
“The *Topic Selection Wizard* really allowed me to see what I’m actually interested in and translate that into a project that was right for me.”

NAIMA RAZA, SCIENCE BUDDIES STUDENT

DISCOVERY

Ds





LET'S GET PERSONAL

Any parent who's ever tried to get a child to eat their vegetables understands that the best way to get a kid excited about something new is to pair it with something they already love. Nearly 1,200 Science Fair Projects explore everything from the physics of skateboarding to programming a video game to the biology of dog breath. With this kind of variety, every kid can find something that excites them, whatever their age or interest.

"If we can engage with them through something they already like to do, then they'll understand and enjoy science so much better than they would if they just read a textbook."

DR. SANDRA SLUTZ
VICE PRESIDENT OF STEM EDUCATION, SCIENCE BUDDIES

Skill Building

Sb

THESE SKILLS LAST A LIFETIME

Children learn through *doing*. As they practice hands-on methods of scientific inquiry, our students begin to see the world around them through a lens of inquisitiveness. They learn to experience the world around them through evidence-based data, and what they discover shapes their understanding of that world and their role in it. They become actively engaged—participating, imagining, and creating new solutions and approaches as they grow.

Critical
Thinking**Ct**Problem
Solving**Ps**

Teamwork

Tw

Flexibility

Fl

Communication

Cn



“They learn how to think... and interpret what they’re seeing in a way that may not be what they expected.”

COLIN BRINKMAN, ASK AN EXPERT VOLUNTEER

THERE’S NO STANDARDIZED TEST FOR THIS

After a grueling 60-hour workweek, how does postdoc fellow Colin Brinkman spend his Saturday off? He fires up his computer and surfs over to Science Buddies to answer student questions on our volunteer-staffed *Ask an Expert* forum, where he helps kids troubleshoot their science projects. “They learn how to think,” says Colin. “They learn how to ask questions. It’s the kind of thing that’s very difficult to get in school these days, with so many standardized tests.”

Colin doesn’t just teach students the scientific method; he keeps them engaged even when projects get challenging. When a student’s data on acid rain came back with unexpected results, for example, Colin saw an opportunity. “He was really upset; he didn’t know what to do with that,” he says. Together, they brainstormed potential causes and alternative approaches, and “over the course of four to five weeks, he went from being worried about getting a crappy grade because he didn’t have the results he expected to being really excited that he had actually learned something.”

Problem-solving. The flexibility to adapt and persevere in the face of challenges. These are lifelong skills that Science Buddies students carry with them throughout their schooling and into the real world. “They learn how to interpret what they’re seeing in a way that may not be what they expected,” says Colin. “That’s really important—not just for someone who’s going to have a career in science, but for any kid.”



CATALYZING SCIENCE LITERACY IN THE CLASSROOM

“Science Buddies makes it super easy for my students to pick a topic for a project and stay with it.”

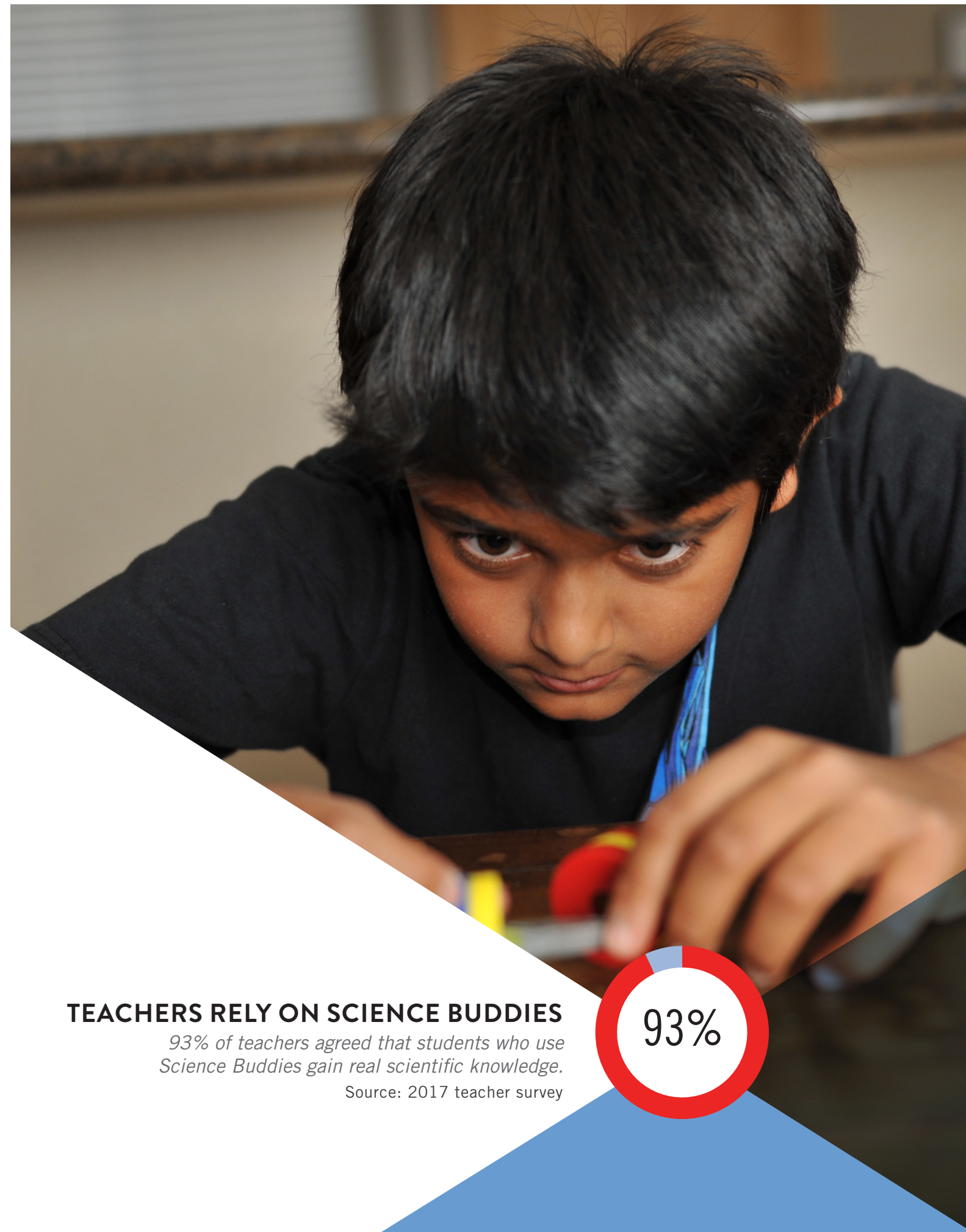
ANGELA MCDANIEL
WINNER, 2011 PRESIDENTIAL AWARD FOR EXCELLENCE IN TEACHING

The rural town of Moatsville, West Virginia boasts a middle school population of about 90 students. “Science gets taught as an after thought in the elementary grades,” observes Moatsville teacher Angela McDaniel. But not in her classroom. Angela, who received the 2011 Presidential Award for Excellence in Mathematics and Science Teaching, has been using Science Buddies with her students since 2007, and has seen the results first-hand.

“My kiddos that use Science Buddies have an easier time understanding how science works,” she says. Since her students have been using Science Buddies’ resources during science fair season, they “have a much higher completion rate.”

“They are complimented over and over when they get to high school because they can do the science, when many others their age cannot.”

See our Teacher’s Guide to Science Projects ►



TEACHERS RELY ON SCIENCE BUDDIES

93% of teachers agreed that students who use Science Buddies gain real scientific knowledge.

Source: 2017 teacher survey

93%

Career
Development

Cd

THE FUTURE OF STEM

Thinker. Maker. Doer. Today's generation is graduating into an online, data-driven, global economy where science literacy matters more than ever. Science Buddies equips students with the STEM knowledge and skill sets needed to thrive in this environment. Of course, not every Science Buddies kid will grow up to be a scientist. Some will become engineers, computer analysts, bridge builders, or medical researchers. They'll work in different sectors, and in different fields. And whatever passion they pursue, they'll be prepared.



Trian & Annam built a crystal radio with Science Buddies' help.

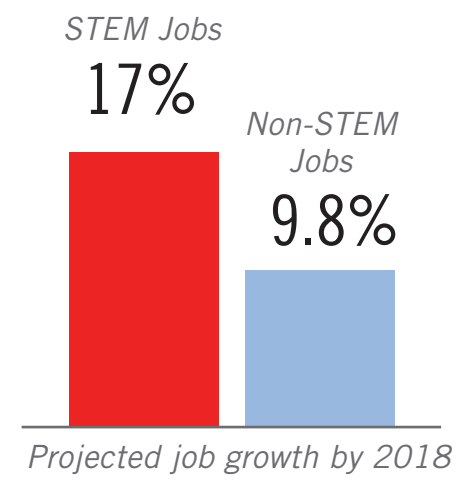
[Read about aerospace & engineering careers](#) ►

FUELING TOMORROW'S SCIENTISTS

“Most of our workers are highly trained and technical; we have a need to support programs that help ensure a future workforce. We can’t be focused just on the kids who are coming out of college, we *have* to be able to look further back into the pipeline and identify those programs that help develop that pipeline, and get these kids interested.”

CARLEEN BESTE
DIRECTOR OF GLOBAL CORP CITIZENSHIP, NORTHROP GRUMMAN
MANAGER, THE NORTHROP GRUMMAN FOUNDATION

SETTING KIDS UP FOR CAREER SUCCESS



Source: U.S. Department of Commerce

WHAT DO YOU WANT TO BE WHEN YOU GROW UP?

“Everyone’s passion is different. Everyone’s project is different. Science Buddies gives you a fishing pole and teaches you how to fish.”

JENNIFER METU, GRADE 10

What’s it like to work as a forensic scientist, an aerospace technician, or a robotics engineer? Science Buddies shows kids what it takes to work in more than 150 different STEM-related careers. By taking kids from a broad overview through educational requirements, all the way to a breakdown of a day on the job, our career profiles help students see themselves in opportunities they may never have dreamed of otherwise.

But we don’t stop there. Students interested in a particular science-related job can go on to explore age-appropriate projects that take them one step closer to a career in STEM.

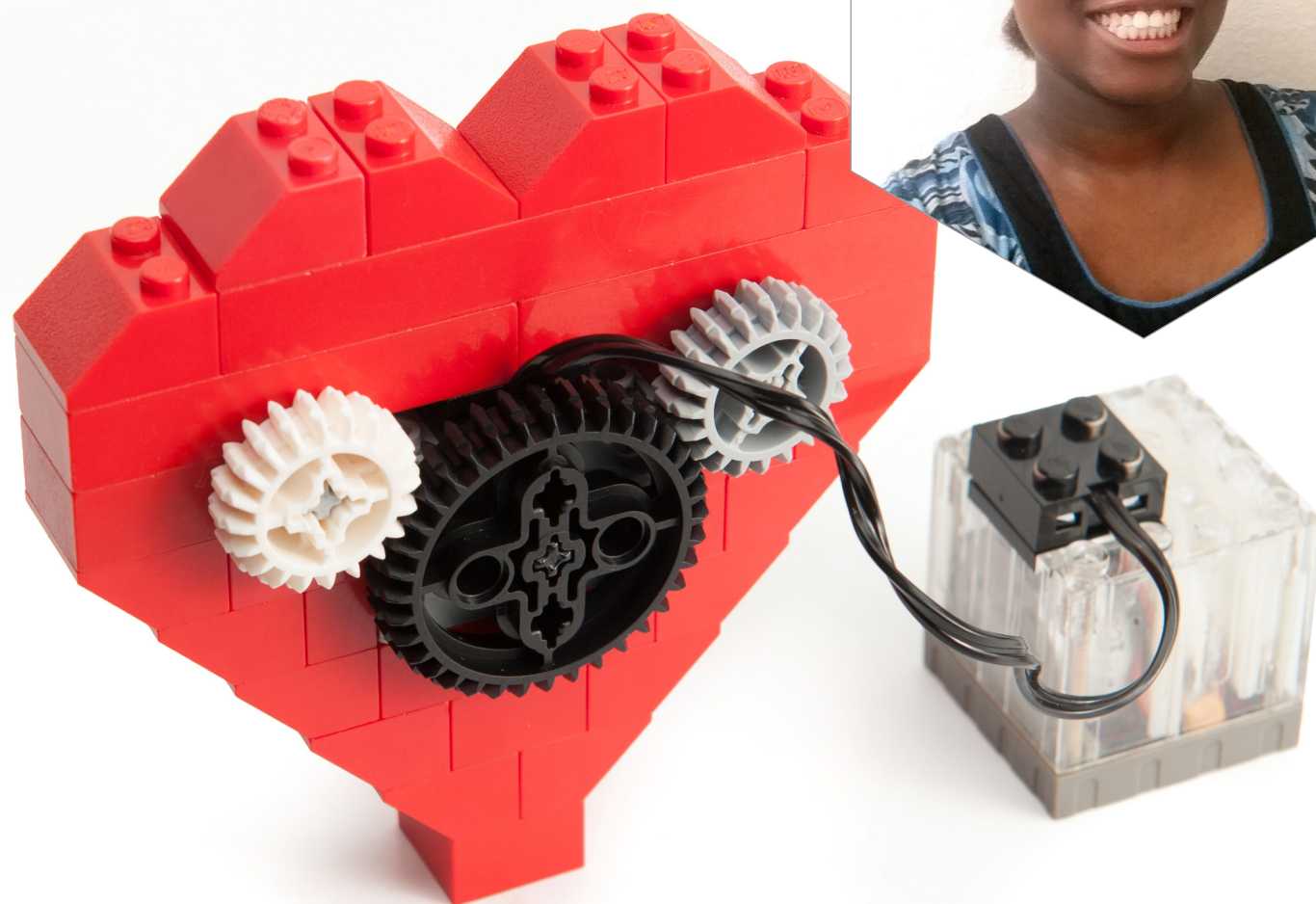
Learn more about science careers at Science Buddies ▶



EXPOSING KIDS TO NEW POSSIBILITIES

*Science Buddies’ Career Profiles were viewed
2.1 million times in 2017*

2.1
MILLION



THE HEART OF AN ENGINEER

When Kathryn Daniels picked up her first set of motorized Legos®, she was hooked. “I loved making windshield wipers move,” she remembers, “and making gears and pulleys.” So it’s no surprise that her first Science Buddies project had her using electricity to create a magnetic field.

Today, Kathryn is doing an 18-month rotation at Edwards Lifesciences, where she’s working on the research and development, manufacturing, and marketing of heart valves.

Kathryn credits Science Buddies for giving her the structure and skills required to succeed on the job. “Science Buddies helped me format my thoughts to align with the scientific method. And working directly with a Science Buddies expert volunteer really helped me stay accountable and enjoy a team dynamic. This is similar to what I experienced in college and industry; in my senior year, I was on a team that designed a program to detect heart arrhythmias using EKG sensors. Without constant collaboration, this project would not have been possible.”

Playing with Legos, attending science fairs, and getting through it all with Science Buddies seem like natural stepping stones to Kathryn’s current job. But she didn’t necessarily know that at the time. “All I knew was that solving problems was fun and it was cool to understand how things worked,” she says. “Looking back, I learned essentially what I wanted to do from those experiences.”

See Science Buddies’ biotechnology projects ►

“It’s awesome! I get to use my biomedical engineering degree to engineer medical devices that can be implanted into the body.”

KATHRYN DANIELS, FORMER SCIENCE BUDDIES STUDENT





WORKING TOGETHER TO SUPPORT STEM

Each day, Science Buddies engages thousands of students with STEM through free online content and learning tools. 2017 was no exception, as we continued to work closely with forward-thinking partners who share our commitment to helping kids from all walks of life build their STEM literacy so they can become productive and engaged citizens in the 21st century.

We hope you'll join us.

2017: STRENGTHENING OUR ONLINE CONTENT

We're able to make a big impact on students' STEM literacy thanks to our partners, funders, dedicated staff, and volunteer science experts. Together, we accomplished *a lot* in 2017:

INTRODUCED LESSON PLANS ALIGNED WITH THE NEXT GENERATION SCIENCE STANDARDS

In collaboration with teachers in 10 schools, we developed an easy-to-use template for lesson plans and launched 30 new NGSS-aligned lessons.

INTEGRATED WITH GOOGLE CLASSROOM

Our Google Classroom integration allows teachers to create Google Classroom assignments using Science Buddies' vast library of resources. Science Buddies was one of the first content providers to integrate with Google Classroom, supporting the growing trend towards paperless classrooms and the use of digital learning platforms.

RAN RECORD-BREAKING FLUOR ENGINEERING CHALLENGE

More than 3,000 K-12 students from 11 countries participated in the third annual K-12 Fluor Engineering Challenge.

CREATED CONTENT COLLECTIONS

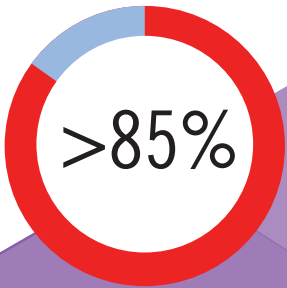
We developed custom content collections highlighting hands-on projects, careers, and recent news articles covering topical subjects including: Cybersecurity, Diabetes, and Agricultural Technology.

HELPED PROVIDE SCIENCE KITS TO SCHOOLS THAT NEED THEM

With the launch of the Science Buddies' Kit Club program, we provided over 600 free science kits to teachers in underserved K-12 classrooms across the U.S.

MAKING THE MOST OF EVERY DOLLAR

More than 85% of funding goes straight to programming

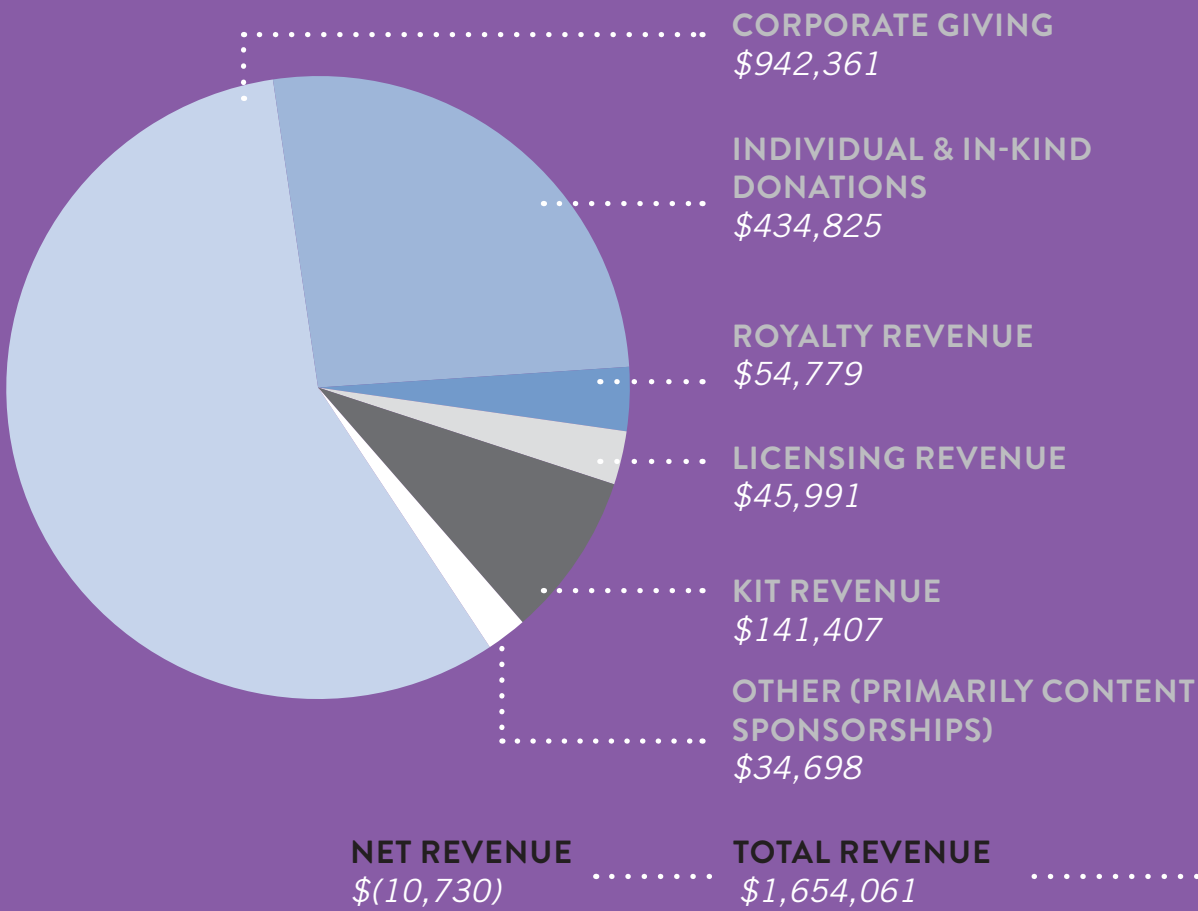


GLOBAL IMPACT, SMALL FOOTPRINT

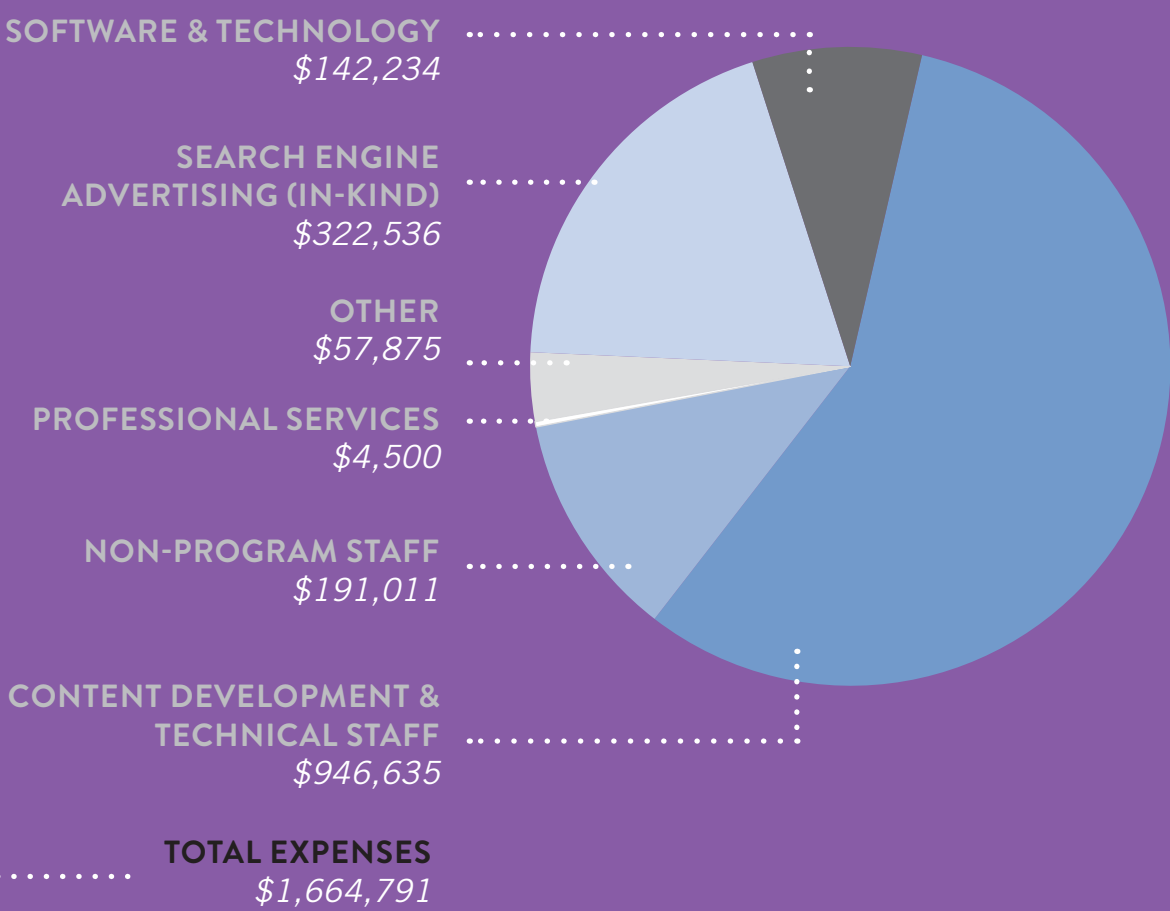
With more than 85% of funding going straight to programming, it's critical that we make the most of our resources. Our strong network of volunteer experts and scientists—and a president who works on a pro bono basis—allows us to keep personnel costs down while developing extremely effective programming.

Going forward, we're working to diversify our revenue stream even further by building out our popular Science Kit program and developing exciting new content sponsorship opportunities.

IN 2017, OUR INCOME CAME FROM



IN 2017, SCIENCE BUDDIES SPENT



YOU CAN BE A PART OF STEM'S FUTURE

INVEST IN TOMORROW'S STEM WORKFORCE

We're able to make STEM accessible to kids everywhere at no cost thanks to the generosity of companies who recognize the importance of engaging students at a young age. We work closely with donors to develop tailored solutions that meet the unique goals of an organization, be they CSR, employee volunteering and engagement, or marketing. With nearly 85% of every dollar going straight to programming, it's an investment that pays—for our funders and our students.

“This is an investment where every dollar is magnified tenfold in terms of the opportunities it provides to young people.”

PAULA GOLDEN
EXECUTIVE DIRECTOR, BROADCOM FOUNDATION

“When we're selecting partnerships, we want to really be a part of the program and make sure we're communicating with consumers. Science Buddies was really able to tailor a program that worked best for us.”

CHRISTINA MAUCH,
SR. PRODUCT MANAGER, ELMER'S PRODUCTS, INC.

GET INVOLVED

To learn more about funding and partnership opportunities, contact Tina Lanese, Senior Vice President:

tina@sciencebuddies.org or (415) 846-5809

SPONSOR CRITICAL STEM CONTENT

As STEM evolves, so does our programming. Our content sponsors tap into millions of students every year by sponsoring content across sciencebuddies.org, including topic sections, individual science projects, career profiles, science kits, and more. Not only do content sponsors gain visibility throughout sciencebuddies.org, tapping into 16.7 million students, teachers and parents, they help expose students to real-world science and exciting opportunities and careers in STEM.

REACHING LIVING ROOMS ACROSS AMERICA

Media and technology giant Time Warner Cable has a unique role to play in STEM education—and that role is all about inspiring content. The company recently launched a series of public service announcements focusing on STEM in sports as a way to change the public's perception of STEM as exclusive to nerds and geeks.

“When we saw the great content on Science Buddies,” says Senior Manager of Strategic Philanthropy Leah Gutstadt, “we realized there was a way to capture the audience that was coming to visit all those project ideas.” Science Buddies worked with Time Warner Cable to identify relevant content within our Sports Science project section that would inspire students by connecting them with something they loved.

“We were able to fund the development of some new sports-related science ideas that would be accessible for everyone and

would bolster the content that was already up there,” says Leah. “It’s about breaking down that barrier that you’re either a math nerd or a jock.”

But what makes this partnership really unique for Time Warner Cable? Because Science Buddies programming has such a significant online reach, it provides a particularly cost-effective way to get the company’s message out about STEM. “When you’re doing work on the ground it’s much more difficult to scale,” Leah explains, “whereas Science Buddies’ online programming is immediately accessible by a lot of kids.”

“We’re very interested in platforms that allow us to reach into people’s homes and get our name out there as a company doing the work associated with STEM.”

LEAH GUTSTADT
SENIOR MANAGER, STRATEGIC PHILANTHROPY,
TIME WARNER CABLE

Time Warner Cable sponsored Science Buddies’ sports content, exposing kids to STEM through their personal interests.



SIGNATURE DONORS



Kenneth &
Constance Hess

Lynn Brewer

SIGNATURE PARTNERS



IN GOOD COMPANY

Our partners and funders are helping us build America's STEM future.
We hope you'll join us.

DONORS

\$10,000 TO 39,999

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PPG Foundation
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Research Institute
Mylan Pharmaceuticals
The L.A. Charitable Foundation
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Theresa Davis

To learn how your organization can help kids from all walks of life
launch and sustain their STEM journey through
Science Buddies, contact:

tina@sciencebuddies.org or (415) 846-5809

JOIN US



Science Buddies

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This annual report made possible through
a grant from the Taproot Foundation.