

2011 Science Buddies Annual Report

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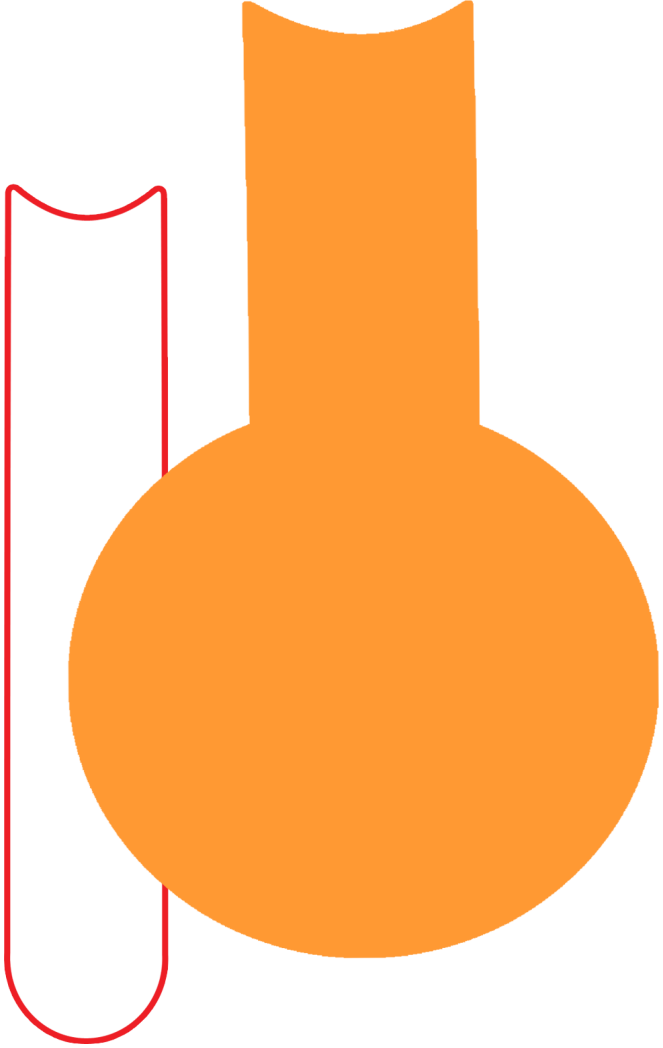
Organization

Science Buddies is a nonprofit 501(c)(3) software and content developer that builds online communities, resources, and tools for K-12 science, technology, engineering, and mathematics (STEM) education.

Our flagship product, an award-winning 15,000-page website (www.sciencebuddies.org) with unique tools and superior content, is one of the most popular science websites on the Internet. Science Buddies' website engages students with a revolutionary approach to personalized, science education.

Imagine visiting a science museum where every exhibit is personalized to match your exact interests —that's what Science Buddies is creating online. Currently focused on K-12 hands-on science activities and experiments, we have a library of more than 1,000 project ideas covering topics in over 30 scientific fields and growing.





There are matches for virtually every student —whether it's a project to make a piezoelectric pickup for acoustic guitar, identify genes that are over-expressed in pancreatic cancer tissue, create a microbial fuel cell, or study how exercise affects memory. Our mission is to help children from all walks of life build their literacy in science and technology so they can become productive and engaged citizens in the 21st century.



Celebrating 10 years of Science Education

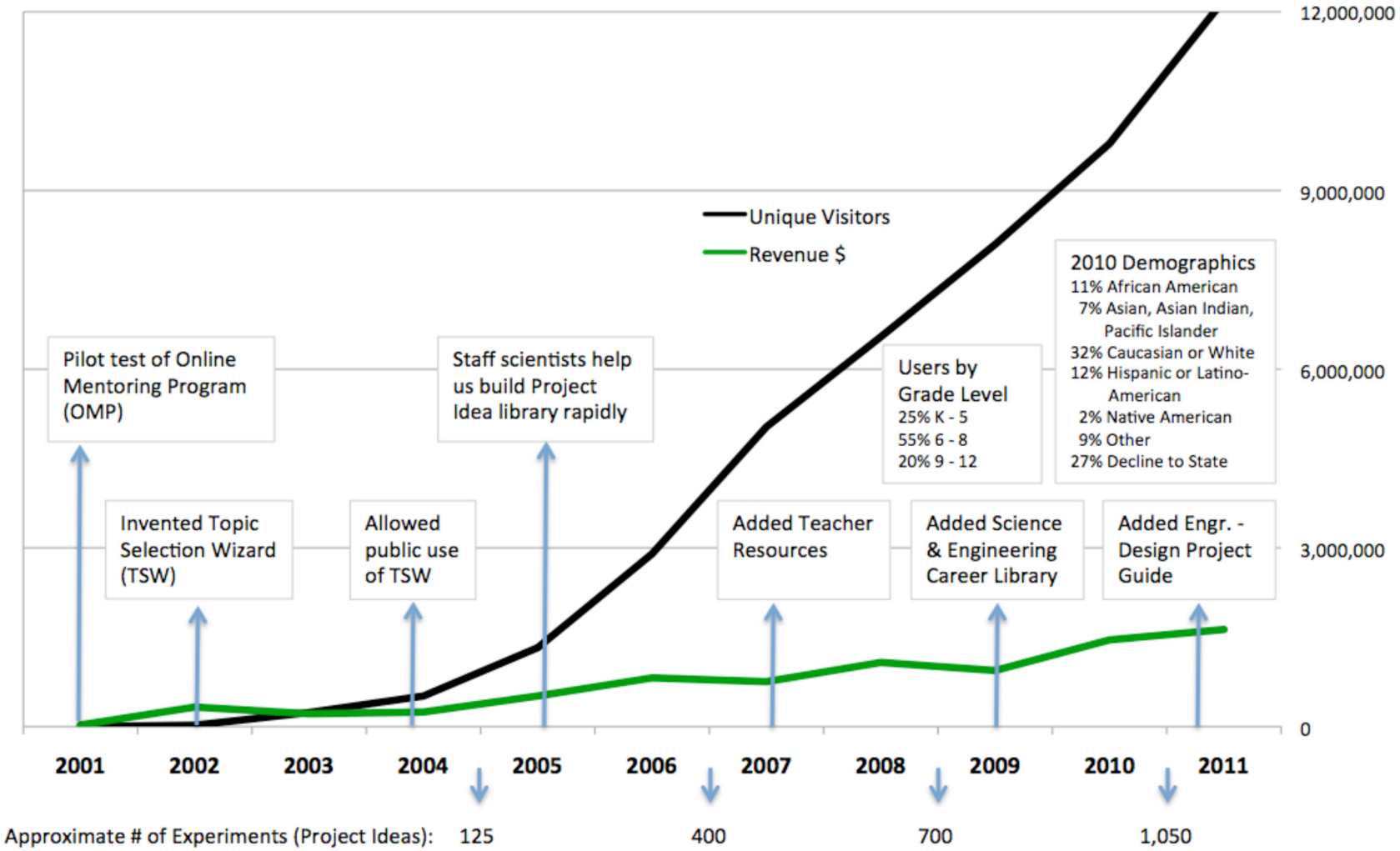
Last fall, Science Buddies celebrated its tenth anniversary, a decade when we went from connecting a handful of science students with mentors to serving more than 12 million students, parents, and teachers across the globe. We could not have achieved this without the support of our donors, the enthusiasm of those who use our resources, and the valuable insights contributed by our nonprofit and educational partners.

To meet changing needs within the science education realm, Science Buddies has strengthened our flagship programs that help students do science fair projects while also creating new resources for other science education settings, such as summer science camps and other out-of-school programs. Our dramatic growth is the clearest evidence of the need for our resources, as shown in the graph to follow.

Founder, Ken Hess

"I was sitting in an awards ceremony when my daughter was in eighth grade, and I thought, 'Wouldn't it be neat to do something where I could level the playing field for kids who don't have a parent who's a scientist or an engineer?' So, in 2001, with the help of a former colleague, Tina Lanese, I launched Science Buddies, an organization designed to help kids undertake and complete a successful science project. We started on a very small scale because we weren't quite sure how it would do and exactly what the focus should be, but we quickly found there was a very strong need for quality information on the web for kids doing science projects."

Growth and Milestones: 2001 - 2011



2005: Selected for SciLinks, Nat'l Science Teachers Assoc.

2007: American Library Assoc., Great Websites for Kids

2008: Parents' Choice Recommended Award

2009: National Parenting Publications Awards

2011: *Science* Prize for Online Resources in Education

Description of Programs

Whether our user's goal is to find a fun science activity for the kids or win the international science fair, sciencebuddies.org puts comprehensive, scientist-authored tools, tips, and techniques at her fingertips.

A sample of our resources is as follows:

• The Science Fair Project Guide and the Engineering Design Project Guide are comprehensive online guides to science research, science fair projects, and the invention design process. They include step-by-step guidance, actual sample assignments, photos of science fair projects, tips for success, and self-grading guides for students.

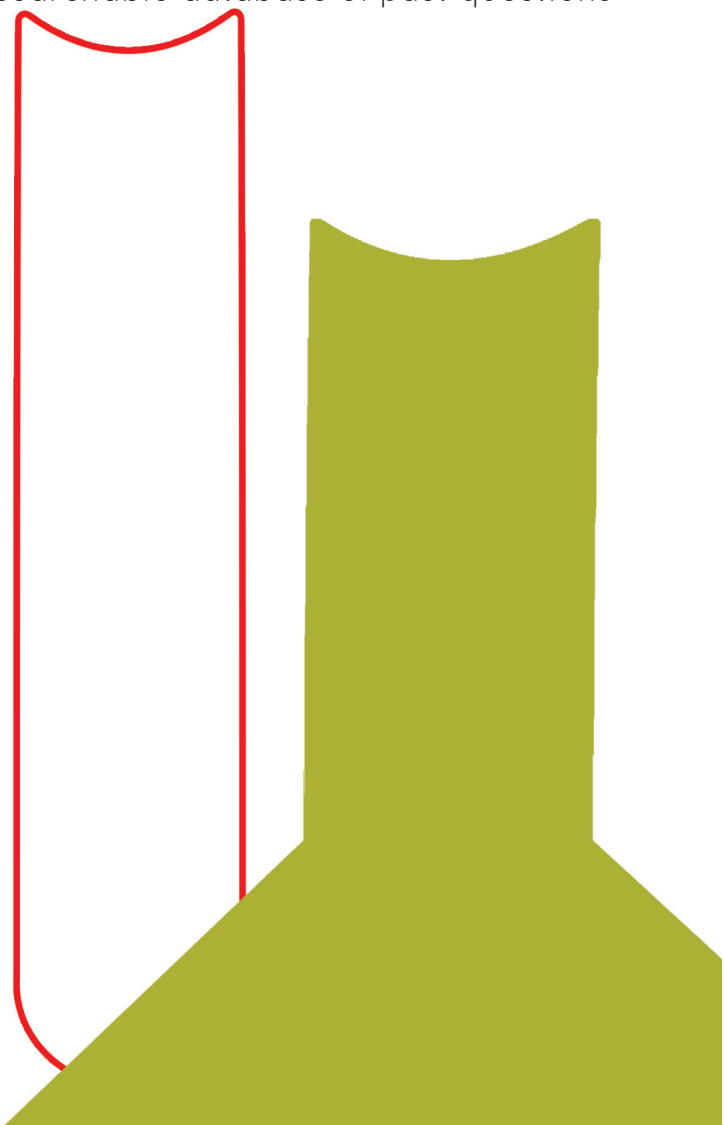
• A robust Teacher Resources section includes planning guides for science fairs, printable copies of how-to information, and lesson plans for in-classroom activities using readily available materials.

• To help students find an intrinsically interesting project, we have borrowed concepts from e-commerce to develop an "intelligent" recommender for the Science Buddies website. The tool we created, the Topic Selection Wizard, asks questions about everyday interests and grade level and directs students to matching project ideas in the library. Students who use the Wizard are 95% more likely to find a project idea that satisfies them compared with students who simply browse possible projects.

• Interest Areas cover 30+ major fields in science and engineering, offer background information (e.g. vocabulary, important concepts, equations, and safety information), and a large selection of Project Ideas.

• Project Ideas are detailed outlines that guide students through the process of creating challenging and innovative science projects. Each Project Idea includes: a description of the subject matter, bibliographic references, locations of Internet-based public domain tools and/or real-time scientific data, and suggested experimental procedures. Each of our Project Ideas is authored either by our staff scientists or by volunteers who are science or technical professionals.

• Ask an Expert (AAE) is an online message board-style forum staffed by science and engineering professionals and talented science students who volunteer to help students with their project questions. AAE is a great way for students to get help when they don't have a parent, teacher, or other adult with the knowledge, time, or ability required. When students have guidance, they have more fun doing their science fair projects and undertake more challenging experiments. AAE also offers a searchable database of past questions



and answers so that other students may benefit from past discussions.

•Science Buddies has partnered with AquaPhoenix Education to produce complete Project Kits for some of our more popular Project Ideas. Families no longer have to drive to ten different stores to find needed supplies; with Science Buddies kits they can have everything involved with their projects conveniently delivered to their doors—all in one box.

•A library of multimedia Science Careers provides information about science and technology careers, including job duties, education requirements, salary ranges, and links to interviews with professionals. The Science Careers link to relevant Project Ideas that students can try to experience what the career might be like.

•A Summer Science Camp Resource and other Parent Resources for informal science education.

• A structured software system that allows partner organizations to run online science mentoring programs, such as the Harris Foundation and University of Texas–Pan American who run "STOMP" (science and technology online mentoring program) for middle school students in South Texas.

Awards

Science Buddies' 15,000-page website

has earned the trust of our users because it is grounded in solid, research-based science.



In 2011, the American Association for the Advancement of Science (AAAS) and the journal *Science*, the most preeminent scientific publication in the world, awarded the Science Buddies website the *Science* Prize for Online Resources in Education. Past winners include the MIT OpenCourseWare project, the Sloan Digital Sky Survey, and the American Museum of Natural History. The award included the honor of authoring a peer-reviewed essay, "Science Buddies: Advancing Informal Science Education." This has enhanced our already excellent reputation among scientists, such as research partners at MIT, Scripps, Stanford, and UC. The American Library Association, the Parents' Choice Foundation, and the SciLinks program of the National Science Teachers Association also recommend Science Buddies.

Highlights of 2011

•**Unparalleled growth:** Our site traffic increased 25% over our record-breaking numbers from 2010. In 2011, we hit a new record high of over 12 million unique student, teacher, and parent visitors for the year. We now serve a number of visitors equal to 20% of the U.S. K-12 population.

•**National recognition:** The respected journal, *Science*, named Science Buddies a winner of the *Science* Prize for Online Resources in Education (SPORE). See the awards section above for details.

•**Building partnerships:** We were chosen by *Scientific American* magazine to assist in the creation of content for their "Bring Science Home" section, which features a series of free and fun science activities that parents can do with their children. Science Buddies also served as the primary instructional resource for the 2011 Google Science Fair.

•**New content:** Our team of scientists and editors published 28 new Project Ideas, 41 science career profiles, and three new short-term, hands-on classroom activities for educators to use with their students. We also created new Interest Areas in our Project Idea library for Medical Biotechnology and Biotechnology Techniques.

•**Expanded resources:** We launched an Engineering Design Project Guide consisting of more than 20 articles describing what engineering is and how to do an engineering project. We also expanded our Video and Computer Game resources to include a Kid-friendly Programming Languages Guide, a Teacher/Parent Video Games and STEM Curriculum resource, and a GameMaker Tutorial.

•**Integrated content:** Through our blog and social media streams, we published content that connects science history and science news to hands-on projects that students can explore from our library of Project Ideas. We also distributed twelve monthly newsletters, two of which were special "themed" issues focusing on Heart Health Science and Video and Computer Game Design.

•**Fostering future scientists:** We launched our first Summer Fellows Program with six incoming college freshman, including the team that won the top prize at the 2011 Intel International Science and Engineering Fair.

•**Added convenience:** Making it even easier for students and families to gather materials for a science fair project, we launched our new Project Idea Kit program to sell science kits for Science Buddies Project Ideas. In the first 15 weeks of our ten-kit pilot program, we sold more than 1,000 kits, a clear sign that this is a service our users want.

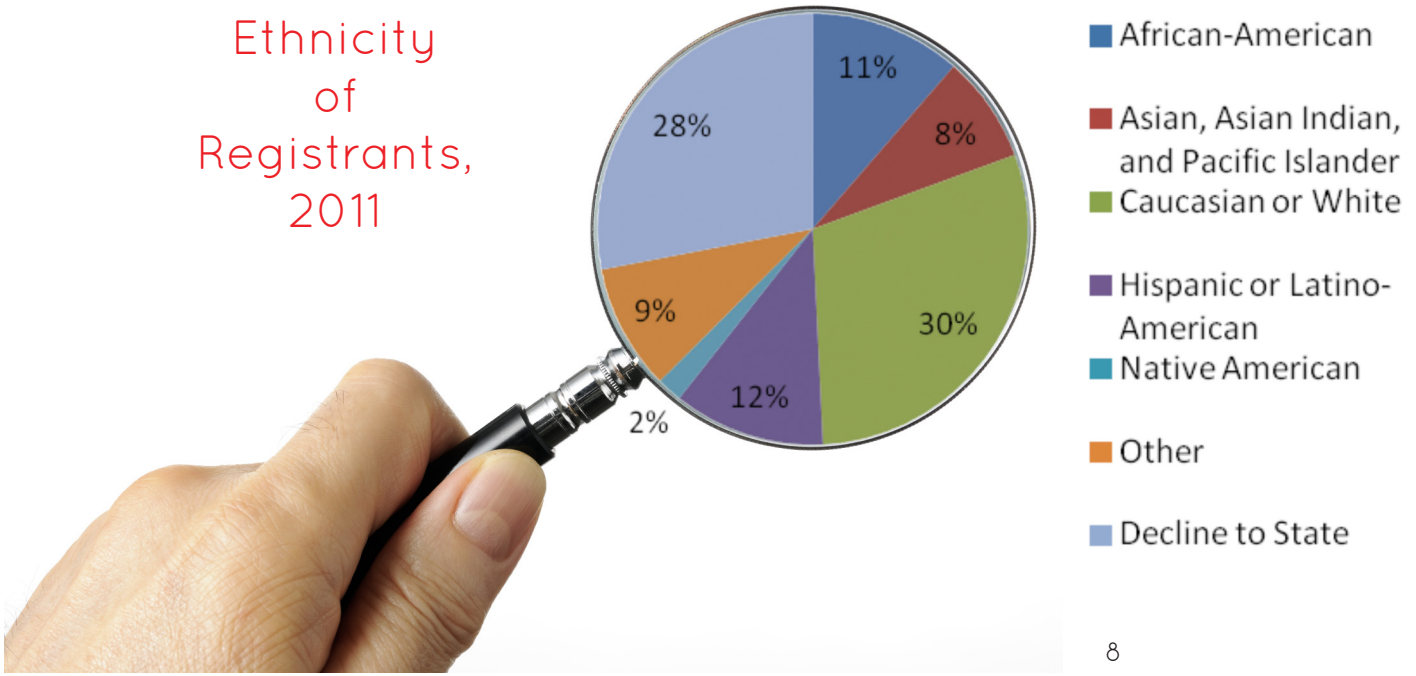
•**Reliable technology:** We completed important infrastructure upgrades to keep the 15,000 page site and its interactive tools safe, speedy, and ready for as many as 100,000 daily visitors from a myriad of platforms and browsers.



2011 Demographics and Traffic Statistics

Website Traffic	2007	2008	2009	2010	2011
Total Visitors	6,936,426	9,287,343	11,629,645	14,173,185	18,357,765
Unique Visitors	5,027,914	6,543,846	8,095,888	9,787,708	12,254,983
International Traffic (approx. percentage of total)	24%	22%	21%	19%	22%

Ethnicity of Registrants, 2011



- Over 12 million visitors in 2011
- Over 109 million pageviews in 2011
- 1.3 million hours spent on our site
- Over 1 million users registered on our website using the Topic Selection Wizard
- Time on-site and time on-page statistics are very high relative to all sites in general and also among reference sites
- Among student visitors, grade levels:
  - 26% K – 5
  - 56% 6 – 8
  - 16% 9 – 12
- Millions of parents (K-5 visitors often accompanied by parents)
- 250,000+ teacher visitors
- 55% female, 45% male
- Geographic location of U.S. visitors is roughly proportionate to state population

Partners



Science Buddies partners with organizations who share a common vision to improve science, technology, engineering, and math literacy and education in grades K-12. Below is a list of our past and current partners.

- AquaPhoenix Education
- COSMOS (California State Summer School for Mathematics and Science)
- Cyberchase
- DragonflyTV
- Education Unlimited
- Expanding Your Horizons Network
- Galileo Learning
- Garcia MRSEC at SUNY Stony Brook
- Google
- The Harris Foundation
- Louis Armstrong Middle School
- National Center for Women and Information Technology (NCWIT)
- New York State Museum
- NOVA (WGBH / PBS Program)
- Oregon Museum of Science and Industry
- Pacific Energy Center
- Project Exploration
- Project Lead the Way
- Robotics Education Foundation
- Science News for Kids
- *Scientific American* Magazine
- School, regional, state and national science and engineering competitions too numerous to list individually
- Society for Science in the Public
- Summer science camps too numerous to list
- Teach for America
- Techbridge
- The Intrepid Sea Air and Space Museum
- The Tech Museum of Innovation
- University of Texas-Pan American
- WGBH

Spotlight on Partnerships

After a great summer camp experience focused on science and put on by partners The Harris Foundation and University of Texas-Pan American, a large group of South Texas middle school students are staying committed to science learning the whole year round by using online forum technology provided by Science Buddies. With this support, some of these students have completed their own science projects—even when their schools did not require one. Funding from Motorola Solutions Foundation made this engaging program possible.

Science Buddies has had extensive experience and success collaborating with individual researchers, academic institutes, and corporate sponsors to create Project Ideas in more than 30 areas of science. Our services have been particularly useful in helping professors secure NSF research grants, including NSF early career development (CAREER program) grants, and in aiding institutes in fulfilling targeted science education campaigns. Examples of previous and continuing academic outreach partnerships include researchers at:

- Massachusetts Institute of Technology (MIT)
- Max Planck Institute for Ornithology
- Molecular Sciences Institute
- New York State Museum
- National Oceanic and Atmospheric Administration (NOAA)
- Princeton University
- Scripps Institute
- Stanford University
- State University of New York, Stony Brook
- University of California Center for Environmental Implications of Nanotechnolc
- University of California Observatories / Lick Observatory
- University of California, Santa Cruz
- VTT/MSI Molecular Sciences Institute



Testimonials and Success Stories

Each year, we receive feedback from dozens of teachers, students, and parents who have success with our services. Here is a sample of what they said in 2011:



"Dear the people of science buddies, My name is Olivia and I am a 7th grader in California. When I was in 5th grade I had to do a science fair project and I followed the steps of your 'Huddle and Cuddle: How puppies keep warm' and guess what..... I won first place!!!!!!! In 6th grade we didn't do science fair so I wasn't able to use your website. Now I'm in 7th grade and when my science teacher said we were doing a science fair I knew I had to go on this website. I am thinking of doing your 'How salty does the sea have to be for an egg to float' but I'm not sure. Hopefully I get first, second, or third. All in all I just wanted to let you know that this website is the best and you don't even have to pay to get an outstanding science fair. Thanks a bunch, Olivia"

–Olivia, a seventh grade student in California (unedited quote)

"The main reason for sending you this email was to say thanks for guiding me for winning in the science fair. My team was the best of category team project award and the grand winner for the category at the science fair. It was a provincial science fair held by Intel. My question was answered on your website and I learned how to make a display board, write a research paper, an abstract and even how to make a data log book. Your website is doing very well and I find myself lucky to know about this website. Thanks once again."

–Sidra, Student

"Science Buddies is an invaluable resource for K-12 students and teachers. I have been using their FREE, online resources since I began teaching middle school in 2005. As I teach 165 students (five classes of 33 students each), it can be very difficult to provide one-on-one time guiding students through their projects. We ask our students to do most work independently, but the daunting amount of information returned by plugging the keywords 'science fair' into a search engine overwhelms even the best students. Science Buddies however provides what I like to call 'One Stop Shopping' for science fairs. Our students can search through over 1000 tested and refined science fair projects to attempt... This site has not only helped me, it has also increased the level of understanding and degree of difficulty in projects carried out by our students. We have come a long way from volcanoes and electromagnets!"

–Rick Akalski, Teacher, Science Fair Coordinator, Louis Armstrong Middle School, Queens, New York, where a majority of students are eligible for free or reduced price lunches.

"...Each year, I begin my students' preparation for the school science-o-rama with a visit to the Science Buddies website to take the interest survey and find ideas for their projects. Several winning projects at our elementary school fair have started with ideas from the Science Buddies website. My student who was this year's top winner at our school fair started with an idea found on the website, adjusted it to meet the classroom requirements, and added her own creative twist. As school captain of our science-o-rama for several years, I have used the planning guide from the Science Buddies website for the last six years. It is a very useful tool for keeping 20+ teachers and 300 students working toward one of the best-attended, high-energy events at our school. Each teacher knows about the website and all of the students' families get information about using it...I also check it for hands-on ideas I can use in my classroom science lessons. I am very happy with the website!"

-Diane Daily
Teacher, San Jose, California

"I teach and manage a site of Adventure in Science (AIS), a science education program for children ages 8-11 that runs on Saturday mornings at the National Institutes of Health. Our students do an independent science project every year and present their findings at a symposium-like event, along with students from other AIS sites in Montgomery County. When students are having trouble selecting a project, I routinely recommend Science Buddies as a good way to get some ideas. Your 'wizard' for finding projects is helpful, and I especially like your comments about features of a good or bad project, and your Ask an Expert section where kids can get personalized advice when they have problems with a project. The site contains a lot of excellent materials and I really value it as a resource for my students (and also for me in planning my teaching)."

-Ed Max, Teacher, Montgomery County, Maryland

"We love Science Buddies! Your website is by far the best science fair resource online! Thank you so much!"

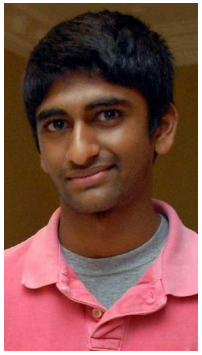
-Edward Altenberg, Teacher, Pajaro Valley Unified School District, Watsonville, California

"I was trying to help my daughter, a high school sophomore, select her classes for next year. She thinks she might be interested in engineering. We really weren't sure what sorts of careers engineering includes or what kinds of things engineers actually do. I typed 'engineering careers' into a search engine and up came sciencebuddies.org. Your career pages are awesome!!!!!!!!!!! Thank you for providing this great resource!"

-Lisa Winn, Parent, Danville, California



The Faces of Science Buddies



Nithin Tumma

The Science Buddies Ask an Expert program continues to give top science students the opportunity to do valuable community service by assisting other students with science questions. Nithin Tumma, a senior at Port Huron Northern High School in Port Huron, Michigan, is an example of an ultimate "science buddy." As a volunteer high school mentor in our Ask an Expert forum in 2011, he won the Craig Sander Outstanding Mentor Award for his contributions. He credits mentoring at Science Buddies as a student Expert in the Ask an Expert volunteer program with helping him recognize and understand the "teacher" within him. His experience at Ask an Expert, he says, also helped him better articulate science—both his own and scientific concepts he spent time explaining in answering questions from other students. Here at Science Buddies, there were cheers all around when we heard the news that Nithin had won the top award in the 2012 Intel Science Talent Search. Nithin's project dealt with slowing the growth of breast cancer cells, a step which may aid in treating the disease. Nithin is truly a success in demonstrating a commitment to not only advanced science research but also community service and science education.

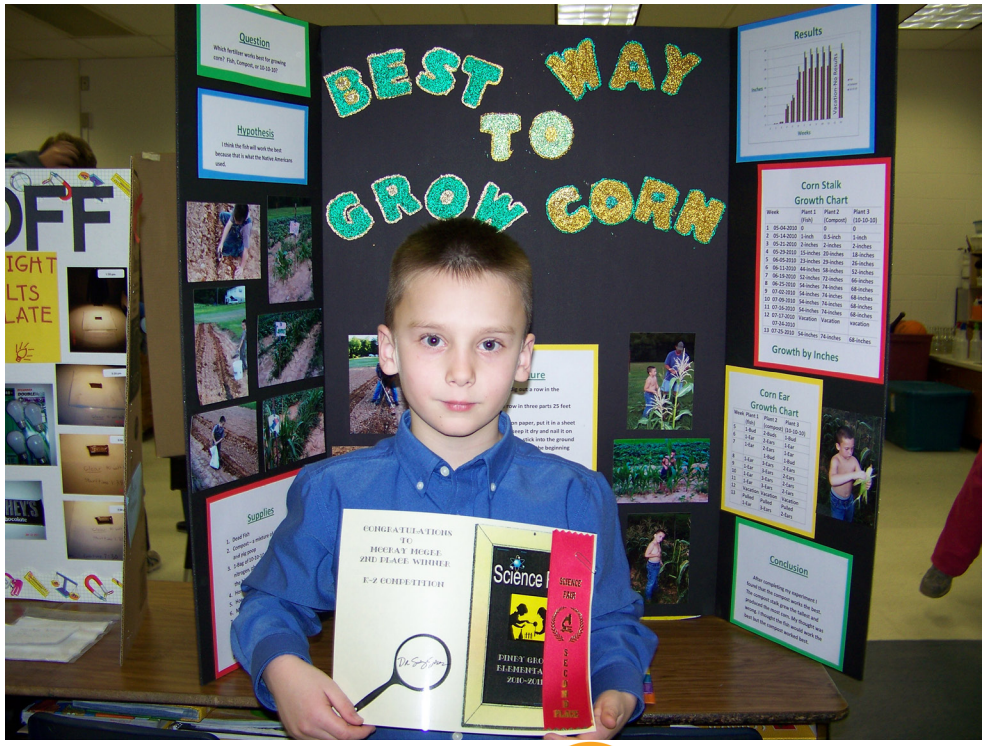


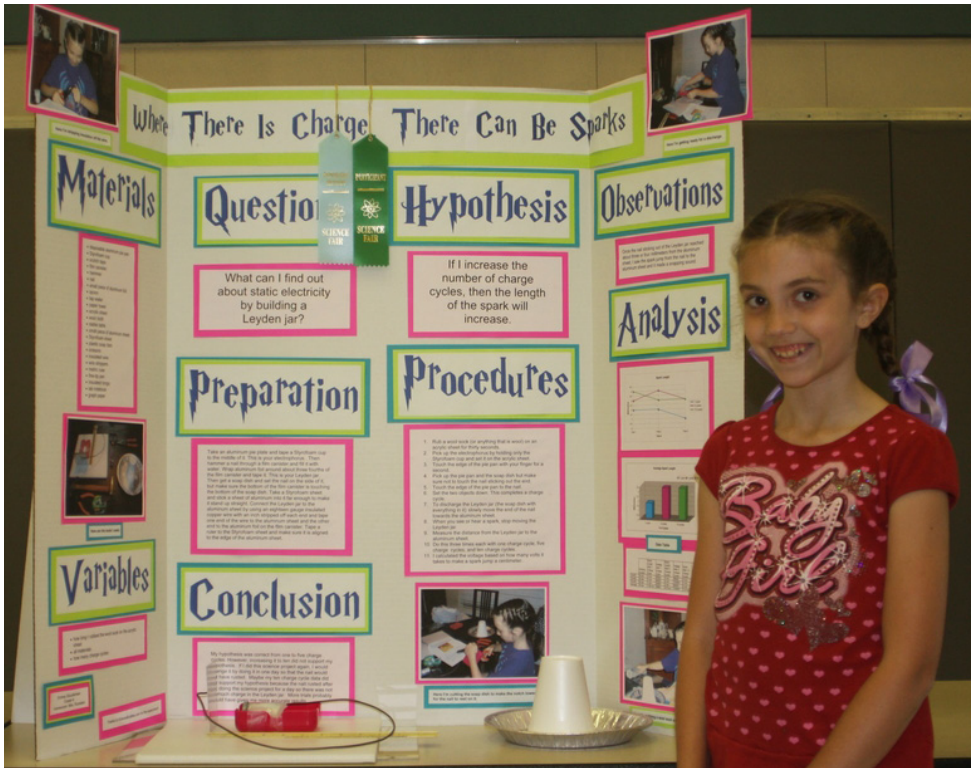
Mikaela May

Mikaela May's world is one full of flowers—flowers at the florist shop where she works part time. For her 10th and 11th grade science projects, Mikaela, a student at Crowley High School in Crowley, TX, combined her growing interest in science with her passion for the floral industry and asked, "What solution most effectively helps preserve the life of roses?" Developing her first agriscience project from scratch was a challenge, but her focus was in full bloom. Using the Science Buddies Project Guide as a checklist, she successfully moved from early stages of designing her experimental study to running her trials and documenting her results. As a culmination, her Phase II project was recognized as an American Museum of Natural History's Young Naturalist Science Competition Semi-Finalist.

McCray McGee

McCray McGee utilized his family farm for both scientific and historical inquiry. McCray wanted to test Squanto's advice to the Pilgrims about growing corn—are dead fish the best fertilizer? McCray's mom turned to Science Buddies' Ask an Expert online advice forum to find out what was most important for McCray to measure, and to ensure the project was kept realistic and straightforward enough for a second grader. Thanks to suggestions from 'Expert' volunteers, McCray measured both height and quantity of ear production for the next 13 weeks.





Emma Gloudeman

Emma Gloudeman turned to Science Buddies' Topic Selection Wizard to find a project for her first school science fair. In reviewing the list of recommended projects, Emma spotted an electricity project that required her to build a Leyden jar and trap electricity in a Styrofoam cup. Emma received an Honorable Mention at her school's science fair, recognition given only to projects that met the full requirements of the fair's judging rubric.



Donors

Science Buddies continued to enjoy generous support from dozens of corporate sponsors whose donations funded the majority of our operating budget. In 2011 we launched our first ever Annual Campaign; however, as in prior years, enlisting corporate support was the focus of our fundraising strategy. Science Buddies received grants or in-kind donations from the following organizations and individuals in 2011, recognized in alphabetical order within each category:

National Supporting Sponsor ($145,000)

- Motorola Solutions Foundation

Einstein Level ($100,000)

- Symantec Corporation

Copernicus Level ($50,000 – $99,999)

- AMD Foundation
- Amgen Foundation
- Chevron
- Life Technologies Foundation
- Medtronic Foundation
- Northrop Grumman Foundation

Darwin Level ($25,000 – $49,999)

- The Astellas USA Foundation
- Bio-Rad Laboratories
- MedImmune

Newton Level ($1,000 – $24,999)

- Biogen Idec Foundation
- Cypress Semiconductor
- EMC
- Genentech, a Member of the Roche Group
- Google
- Intrepid Museum Foundation, Inc.
- Juniper Networks Foundation Fund, an advised fund of the Silicon Valley Community Foundation
- Lockheed Martin
- Motorola Mobility Foundation
- National Semiconductor
- Novo Nordisk
- Pacific Gas and Electric Company
- The Pentair Foundation
- PPG Industries Foundation
- SanDisk Foundation, an advised fund of the Silicon Valley Community Foundation
- Symantec Corporation
- Synaptics
- Vernier Software & Technology
- Western Digital
- Westinghouse Electric Company
- Xerox Foundation
- Xilinx Community Fund, an advised fund of the Silicon Valley Community Foundation

Individual Donors and Private Foundation ($1000 and higher)

- Anonymous
- Mark Bailey
- Lynn Brewer
- Gordon Eubanks
- Ken and Connie Hess
- Loewenstern Foundation
- Rick Marz
- Charles and Kim Mullin
- Norman Tu

Academic Outreach Partners

- Dr. Roland Kays, New York State Museum
- Dr. Aaron Romanowsky, University of California Observatories, Lick Observatory
- Dr. Elizabeth Young, Massachusetts Institute of Technology

Donations in Kind

- Advanced Micro Devices
- Citrix Systems, Inc.
- Google
- MSN
- Pacific Gas and Electric Company
- PI of San Francisco
- Shearman & Sterling LLP, Menlo Park
- SRC Productions, LLC
- Symantec Corporation

Financial Summary

Science Buddies is a very cost-effective organization. Our programs happen online, so we are able to keep costs and barriers to volunteering low. Our cost structure is unusually straightforward in that we have few expenses beyond staff salaries. The bulk of our staff salaries go towards software development, content development, and online programming.



A summary of our 2011 and 2010 results are below:

Sources of Revenue	2011	2010
Funding from Corporations, Private Foundations, and Individuals	$ 1,306,844	$ 1,455,227
Program Service Revenue	5,775	–
Dividends and Interest	350	557
Other Income	37	1,582
Total Revenue	$ 1,313,006	$ 1,457,366

Summary of Expenses	2011	2010
Employee Wages, Taxes and Benefits	$ 914,959	$ 609,177
Server, Internet, and Content Software	90,710	95,452
Search Engine Advertising (In-Kind)	334,409	330,640
Awards and Subgrants	25,300	550
Website Content Subcontractors	31,991	25,492
Other Expenses	81,818	53,295
Total Expenses	$ 1,479,187	$ 1,114,606