



2009
Science Buddies Annual Report

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Executive Summary

Organization

The Kenneth Lafferty Hess Family Charitable Foundation is a 501(c)(3) public charity that was founded in 1995. In 2001, the Foundation began its sole operating program, Science Buddies. In 2009, we began the process to officially change our name to Science Buddies, a process that is now complete. Science Buddies is located in the San Francisco Bay Area, but serves students from all over the United States, as well as English speakers across the world.

Purpose

Science Buddies focuses on making science projects and science fair participation accessible to students, teachers, and parents from all backgrounds, and on improving the quality of hands-on research projects. Over the years, we have become the premier destination for online science project resources, guidance, and support. Our mission is to help children from all walks of life develop a love of science and an understanding of the scientific method.

Description of Programs

The goal of all Science Buddies programs is to identify specific student needs (e.g. "I need help selecting a topic for my project") and create solutions (not just reading material) that actively engage students and scientific professionals. Our programs focus on:

- Fostering interaction between students and science and technology professionals, making science real.
- Leading students to projects that are more challenging and have a higher science content than projects they might choose on their own.
- Saving students time and frustration: Students want to use our tools because they save them time and make science research more fun.

Our programs include:

- 1) The **Science Fair Project Guide**, a comprehensive online guide to doing science research and science fair projects. It provides step-by-step guidance for every stage of the process, from establishing a research question and constructing a hypothesis to designing a display board.
- 2) **Resources** for teachers and parents, including worksheets, rubrics, Internet safety guidance, and information on avoiding plagiarism.
- 3) The **Topic Selection Wizard** (TSW) to help students find a science project that excites them. First, the tool leads students through a series of questions to determine their needs and interests. Then, it analyzes students' responses to provide a custom-tailored selection of science projects.

4) **Interest Areas**, which cover major fields of science and engineering, and offer both background information (e.g. key terms and concepts, equations, and safety information) and a large selection of Project Ideas.

5) **Project Ideas**, which are detailed outlines that help students create a challenging and innovative science project. 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 suggestions for experiments. Our Project Ideas are authored by our staff scientists, all of who hold advanced degrees, or by volunteers who are science or engineering professionals.

6) **Ask an Expert (AAE)**, an online forum staffed by volunteer scientists and talented high school students who help students anywhere, on a drop-in basis, with their science 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 desire to help them. When students have guidance, they have more fun doing their science fair project, undertake more challenging experiments, learn more, and generally develop a more positive attitude about science. AAE also offers a searchable database of past questions and answers so that other students can benefit from past discussions.

7) A library of multimedia **Careers in Science** profiles, which provide information about science and technology careers, including job duties, education requirements, salary ranges, and links to interviews with professionals. We launched this new resource in August of 2009, thanks to a generous grant from the Noyce Foundation. By the end of 2009, we featured profiles of more than 40 careers, with dozens more in development.

Highlights of 2009

2009 was a year of growth and progress for Science Buddies. Our web traffic continued to increase exponentially as we attracted millions of new and returning visitors. We also developed new and engaging content, while completing upgrades to our website. Key accomplishments include the following:

- We experienced enormous growth in web traffic. In 2009, our website was visited about 11.6 million times—about 2 million more than in 2008. During peak months, our web traffic rivals that of other established websites such as Scientific American and the Red Cross. We also experienced significant gains in registered users, with more than 1 million people registering on our website using the Topic Selection Wizard.
- Our editorial team worked hard to publish 120 new Project Ideas.
- We increased our social media presence in order to keep in touch with our geographically diverse users by launching a popular blog, Facebook page, and Twitter account. Our social media allows us to inform users about our latest offerings and connects current science news to our content.
- In July, thanks to a generous grant from the Noyce Foundation, we began implementing our new Careers in Science resources. With links at the bottom of relevant Project Ideas, our multimedia career profiles allow students who enjoyed a particular project, to find out how to translate their interest into a real-world profession. Each highlighted career details the nature of the work, education requirements, and salary ranges.

- We updated the appearance and organization of our website to make it even more user-friendly. As a part of the update, we added a Parents Resources page to provide parents with a “one-stop shop” for helping their children with science projects, and we upgraded our Advanced Project Guide. We also added tabs for our blog and career resources.
- In August, we held our first-ever webinar for teachers, which focused on how to use Science Buddies’ wealth of resources to implement a hands-on science curriculum in the classroom. More than 100 teachers from across the country joined us, and their response was generally positive.
- Our Vice President, Courtney Corda, was featured twice on the popular local television show *View from the Bay* as “Science Mom,” demonstrating Science Buddies Project Ideas and providing tips on how parents can make science an everyday part of kids’ lives.
- In November, we were honored with a prestigious Gold Award in the National Parenting Publications Awards (NAPPA) Children’s Products competition. For the past 20 years, NAPPA has helped parents and professionals make smart choices for their kids. Evaluating products using strict criteria, NAPPA's top-notch team of judges, parents, and even kids themselves select the most fun, safe, and educational products as NAPPA Gold and Honors winners. NAPPA award winners stand out as the cream of the crop of children's material.
- Our lean organization continued to operate very efficiently and at a much lower cost per student served than other prominent mentoring and education organizations. Despite the worldwide economic downturn, we successfully raised our operating budget.

In the following sections, we provide a detailed overview of our 2009 progress. Although we are proud of the accomplishments we had in 2009, we continue to evaluate our organization and set goals for growth and improvement. In 2010, we aim to more than double our operating budget so we can meet the enormous demand for our resources and accommodate the millions of visitors we serve.

Results of 2009 Programs

Overall Website Traffic

We are pleased to report a significant increase in the number of unique visitors to the Science Buddies website during 2009. Our biggest sources of traffic are search engine organic results and search engine ads; however, we also rely on word-of-mouth and press coverage. Highlights of our 2009 website traffic include:

- More than 1 million users registered on our website using the Topic Selection Wizard.
- Our new Parents Resources section received 49,797 unique pageviews¹, which approximate unique visitors.
- We reached a new all-time high for the total number of visits to the website—about 11.6 million.

Figure 1. Science Buddies Website Traffic Summary²

Website Traffic	2006	2007	2008	2009
	Calendar Year	Calendar Year	Calendar Year	Calendar Year
Total Visits to Website	4,076,114	7,204,538	9,287,343	11,629,645
Total Page Views	28,163,383	46,610,928	71,139,443	86,050,474
Pages Viewed per Visitor	6.91	6.47	7.66	7.40
Avg Session Length (Min:Sec)	06:51	06:33	05:48	05:32
International Traffic (approx. percentage of total)	15%	16%	22%	21%

Figures 2 and 3, on the following page, show visitor demographics for our website. The figures are calculated based on the registered users of our optional Topic Selection Wizard survey (about 10% of our total visitors register). We can extrapolate these percentages to the visitors to our site, showing that our visitors come from all ages and ethnicities. Given the growing concern about girls' participation in the sciences, we are pleased to report that more than half (about 55%) of our visitors are female.

¹ Source: Google Analytics

² Source: Google Analytics

Figure 2. Science Buddies Website Demographics

Grade Level	%Total	Ethnic Group	%Total
K - 5	27.9%	African-American	11.3%
6	17.3%	Alaska Native	0.4%
7	19.5%	Asian	4.6%
8	18.3%	Asian Indian	2.2%
9	6.8%	Caucasian	30.0%
10	4.2%	Latino-American	10.8%
11	2.2%	Native American	1.7%
12	1.8%	Other/Decline to State	38.3%
Adults	1.9%	Pacific Islander	0.9%
Total	100%	Total	100%

Figure 3. Registrants for the Topic Selection Wizard by State or Region (in alphabetical order by state)

State	Registered Users	Population	State	Registered Users	Population
Alabama	9,502	4,661,900	Nebraska	3,111	1,783,432
Alaska	4,166	686,293	Nevada	7,941	2,600,167
Arizona	8,231	6,500,180	New Hampshire	1,288	1,315,809
Arkansas	9,502	2,855,390	New Jersey	18,077	8,682,661
California	100,865	36,756,666	New Mexico	9,233	1,984,356
Colorado	17,013	4,939,456	New York	48,913	19,490,297
Connecticut	7,501	3,501,252	North Carolina	37,341	9,222,414
Delaware	2,218	873,092	North Dakota	887	641,481
District of Columbia	4,948	591,833	Ohio	36,091	11,485,910
Florida	136,489	18,328,340	Oklahoma	7,700	3,642,361
Georgia	36,578	9,685,744	Oregon	6,947	3,790,060
Hawaii	3,520	1,288,198	Pennsylvania	31,630	12,448,279
Idaho	2,500	1,523,816	Puerto Rico	1,269	3,958,128
Illinois	49,504	12,901,563	Rhode Island	2,471	1,050,788
Indiana	20,785	6,376,792	South Carolina	16,315	4,479,800
Iowa	3,643	3,002,555	South Dakota	1,709	804,194
Kansas	5,351	2,802,134	Tennessee	17,516	6,214,888
Kentucky	11,568	4,269,245	Texas	84,720	24,326,974
Louisiana	16,295	4,410,796	Utah	17,760	2,736,424
Maine	17,699	1,316,456	Vermont	1,015	621,270
Maryland	31,842	5,633,597	Virginia	29,999	7,769,089
Massachusetts	17,063	6,497,967	Washington	21,715	6,549,224
Michigan	19,259	10,003,422	West Virginia	2,820	1,814,468
Minnesota	12,370	5,220,393	Wisconsin	6,741	5,627,967
Mississippi	10,431	2,938,618	Wyoming	1,697	532,668
Missouri	11,890	5,911,605	Outside U.S.	114,465	N/A
Montana	3,105	967,440	Total	1,096,114	N/A

The Topic Selection Wizard

In 2001, our founder, Ken Hess, became interested in helping kids participate in the wonderful learning experience of science fairs. Right away, he discovered that many students find selecting a topic to be the most daunting aspect of doing a science research project. To help solve this problem, he designed and programmed the Topic Selection Wizard (TSW) to help students find ideas for science projects that suit their interests. Since its debut in 2003, the TSW has become a popular feature of our website, and it is one of the most sophisticated recommender engines on the web. In 2009, more than 1 million users registered using the TSW, including individuals from every state in the U.S., as well as other English-speaking countries.

Content Development and Upgrades

Science Careers

In August 2009, just in time for the start of school and our peak traffic season, we launched our new Science Careers resources, thanks to a generous grant from the Noyce Foundation. By the end of 2009, our staff scientists compiled more than 40 profiles of science and technology careers, with dozens more in development. Our career profiles encompass a range of education levels, from associate's degree to PhD, and a variety of fields. Each profile provides salary information, education requirements, and links to videos and interviews with real-life professionals. Links to the Science Careers are located at the bottom of related Project Ideas, so students who enjoyed a particular project can learn how to translate their interest into a real-world career. Science Careers also have their own tab on our website. Ultimately, we hope our Science Careers will inspire students to pursue careers in science and technology and fulfill the growing demand for workers in these fields.

Website Upgrade

New content, like our Science Careers, inspired us to conduct a minor makeover of our website design. We added a tab for our Parent Resources page, which includes links to the TSW and Project Ideas, as well as information about providing just the right amount of help to kids doing science fair projects, plagiarism, and how to keep kids safe while they surf the Internet. In addition, we added tabs for our blog and career profiles.

Project Ideas

While adding new resources, we also continued to develop new and exciting Project Ideas for our website. Science Buddies' staff scientists and editorial team worked diligently to write, edit, and publish new Project Ideas for the website. By the end of 2009, we added 120 new Project Ideas to our already expansive library, bringing our total to more than 900. Some of our new Project Ideas included "That's a Real Smile!... or is it?," "Want to Make a Video Game? Here's How!," and "The Reasons for the Seasons."

Science Buddies in Action

Throughout 2009, we continued to add to our collection of stories from students and teachers who used Science Buddies resources to achieve scientific success in class fairs and beyond. We profiled teacher Lauren Hirsch of Wheeling, Illinois, who switched careers from biotech to teaching and who uses Science Buddies to teach students the scientific inquiry

process. Another success story featured Brooke Murray, an eighth grader from Rydal, Pennsylvania, whose adaptation of the Project Idea “Keeping You in Suspens(ion)” earned her first place in the Physical Sciences Division at her school’s science fair. We are proud of the great work teachers and students are doing with our resources.

Ask an Expert (AAE)

“Ask an Expert” is an online advice forum staffed by volunteer scientists, engineers, and talented science students who offer their help and expertise to students engaged in science fair projects. AAE offers drop-in help to any student looking for answers and help with his or her schoolwork or science projects throughout the year. Although AAE can be helpful for any student involved in a science project, it is especially beneficial for students whose parents lack the time or expertise to assist them, as well as students who cannot find a suitable mentor. At the same time, Ask an Expert presents a convenient and rewarding volunteer opportunity for scientific professionals and high school students, as they can serve as mentors on their own time and from their home or office computers. During the 2008-2009 academic year, we had 56 adult and teen volunteers staffing the Ask an Expert Forum. Information on participating schools and corporations is below.

Figure 4. Schools of High School Volunteers

Participating Schools	State	Participants
Commack High School	New York	1
Harmony Science Academy	Texas	1
Jericho High School	New York	1
Lynbrook High School	California	1
Plainview-Old Bethpage J.F.K. High School	New York	4
Plano West High School	Texas	1
Queens High School for the Sciences	New York	1
Ramaz Upper School	New York	1
Total Mentors		11

Figure 5. Organizations of Adult Volunteers

Advisor Organization	Participants
Biorad	2
Brigham Young University	1
Collin County Community College	1
EMC/ Supply Based Engineering	1
Genentech	1
GNF	1
Hollywood Presbyterian Medical Center	1
Intel Corporation	1
Invitrogen	1
LMCO	1
Lund University	1
Microsoft Corporation	1
MMW Group	1
Motorola	1
New York State Museum	1

Plainview School District	1
Princeton University	1
Seagate Technology	1
SRI International	1
Symantec	2
Synaptics, Inc.	1
TriVascular2, Inc.	1
UC Davis	2
UC Irvine	1
UC Riverside	1
UC San Diego	1
UC Santa Cruz	1
University of South Alabama	1
USDA Forest Service	1
Xilinx, Inc.	1
Yousable Solutions	1

Penn State College of Medicine	1
Penn State University, Materials Science	1

Other	9
Total	45

Testimonials

Each year, we receive feedback from dozens of teachers and parents who have had success with our services. Here are samples of the feedback we received in 2009.

“My husband and I have two sons, the youngest of which declared at seven that he was going to be a scientist. He is now nine. That was great, except my husband and I know nothing of science and we were really concerned that our lack of knowledge would hinder our son. But after a Google search, I found Science Buddies. We use it not only at science fair time, but also during the year for other projects. Our son loves it and my husband and I can understand it. Science Buddies allows us to nurture our son's love of science.”

Donna Shanks, St. Peters, MO

“I used Science Buddies extensively last year as kind of ‘sounding board’ for me. I used it as a reference for parents. It helped define what the parents were expected to do and not do for their child in a very positive and real way. One of my parents, whose child has ADD, told me that it was an invaluable guide to breaking down the steps of a science fair and was very helpful in setting up a timeline for her daughter to follow so she would stay on track and not fall behind.

I used the rubrics to help define the requirements of the students. I have taught science for many years and it was a great timesaver for me to see examples that were down to earth, easy to follow, and were already made for me... no reinventing the wheel. Your guides (ex: hypothesis, variables), in my opinion, are easy to read and could be used at any grade level.

I used the judges’ information as a guide for the evaluators who came in on science fair day. They were very appreciative of the ideas and questions and easy-to-use format. Since parents had access to this site, too, many said that they helped at home with having their child practice what they were going to say to the judges. It gave the students an opportunity to feel a little bit better about their presentations...not going into them cold turkey!”

Leisa Kolberg, St. Vincent DePaul School, Omaha, NE

“I use Science Buddies as a resource for my students to learn about science fair project components and to get ideas for projects if they are planning to do one. I put the site on the flyer that goes home with everyone in our school as part of the advertisement about the upcoming science fair (I am our school Science Fair chairman). I think the site is well-organized and has great information. Your site is actually a component of a web-based scavenger hunt assignment that I created for my students to use while we are studying the scientific method. Keep up the good work!”

Julia Arth, Stanton Elementary School, Des Peres, MO

“Saint Joseph High School is an extremely project-oriented school. We regularly participate in the Pennsylvania Regional Science Fair and the Pennsylvania Junior Academy of Science competitions. Our students are encouraged to do as many hands-on projects as possible. It is our philosophy that our students must step outside of the classroom and apply their book knowledge

to best gain advantage. Science Buddies has been an excellent resource to aid our mission.”
Laura Burkett-Marzka, St. Joseph High School, Natrona Heights, PA

“I teach science to all of our fifth graders, as well as serve on the Willow Brook Science Committee for School Improvement. One of our School Improvement Goals is 100% participation of students in our Willow Brook Science Fair. Purple ribbon winners here go on to enter their projects in The Greater St. Louis Science Fair. I have found Science Buddies to be extremely helpful, especially when it comes to preparing my students for the science fair. We begin with the Topic Selection Wizard, and then search the enormous bank of possible ideas and testable questions. I find the checklists, scoring guides, parent communication, and posters to be very usable. We have a link to Science Buddies on our Willow Brook website so parents and students have access to this valuable source from home. I also use the experiment suggestions for class projects when I am looking for activities to enrich my curriculum.”
Sarah Funderburk, Willow Brook Elementary School, St. Louis, MO

“My sons love Science Buddies. They had a hard time in science, and because of your website and help, their grades have gone up and they are more interested in science. Your website is a great tool for them to use. A lot of what you do on it, they are doing in school. We also love doing the experiments at home.”
Melissa Wilburn, Republic, PA

Calendar Year 2009 Financial Summary

Science Buddies is a very lean organization. The president, Ken Hess, takes no salary, and all other employees operate from home offices, keeping overhead expenses at an absolute minimum.

Figure 11. Calendar Year Expenses

Revenues

Source	Amount	Notes
Contributions, gifts, and grants	\$941,235	Includes about \$400,000 of in-kind gifts
Dividends and interest from securities	\$1,326	
Affiliate income	\$770	
Total Revenues	\$943,331	

Expenses

Budgeted item	Amount	Notes
Total Salaries	\$393,446	Our CEO volunteers full-time
Payroll Taxes	\$32,785	
Health Insurance	\$4,769	
Workers' Comp	\$3,724	
Total Employee Expenses	\$434,724	
Accounting Fees	\$1,665	
Other Professional Fees	\$50,713	Consulting
Administrative Expenses	\$1,425	
Advertising	\$2,954	
Advertising (in-kind)	\$328,731	
Dues and Subscriptions	\$542	
Insurance	\$7,629	
Internet	\$6,814	
Misc. Office Expenses	\$9,353	
Miscellaneous	\$1,402	
Participant Awards and Scholarships	\$300	
Personnel Screening	\$810	Background checks on employees and volunteers
Postage and Mailing	\$98	
Promotion	\$2,058	
Rent Depreciation	\$0	Our office space is donated
Software Maintenance	\$61,715	
Total Expenses	\$913,097	

Category Breakdown

Source	Amount
Program expenses	\$744,174
General expenses	\$50,220
Fundraising expenses	\$118,703
Total	\$913,097

Fundraising Summary

Science Buddies continued to enjoy generous support from dozens of corporate sponsors whose donations funded the majority of our operating budget. 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 in 2009:

National Presenting Sponsor (\$150,000)

Seagate Technology

Copernicus Level (\$50,000 – \$100,000)

AMD Foundation

Chevron

The Medtronic Foundation

Motorola Foundation

Northrop Grumman Foundation

Darwin Level (\$30,000 – \$49,999)

Bio-Rad Laboratories

Intel Foundation

MedImmune

Salk Level (\$15,000 – \$19,999)

Amgen Foundation

Edison Level (\$10,000 – \$14,999)

EMC

OSI Pharmaceuticals

PG&E

Galileo Level (\$5,000 – \$9,999)

Callidus Software

Cypress Semiconductor

Lockheed Martin

National Semiconductor

PPG Foundation

United Business

Media/Techweb/Interop

SGI

Xilinx

Curie Level (\$1,000 – \$4,999)

AMD

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Citrix Systems

Google

Seagate Technology

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