

Fairmont School proposal to Ed Fund West to bring the Lawrence Hall of Science “Build It” Festival

9/29/10

What other sources of funding have you sought or secured for this project? (150 words max.)

The PTA is able to contribute \$120 dollars toward this project.

State the challenge: specifically describe your issue and how your project will address and attempt to solve it (250 words max)

A shortage of space is a serious problem at Fairmont Elementary, an aging school campus (built in the 1960s) that until two years ago had 360 students and that now houses 535. Also, the PTA has very little funding for supplemental programs because its annual budget of \$25,000 goes almost entirely to Playworks for a P.E. type teacher. Previous science related programs, Family Math and Science night and the PTA-sponsored science festival, have been lost due to budget cuts. While California state science standards for all elementary grades include standards related to investigation and experimentation, teachers have little space and few resources to create an environment where students can engage in their own creative investigation and experimentation. Also, the school's emphasis has long been on increasing student proficiency in English and Math so science has naturally taken a backseat. The good news is that Fairmont is slated for rebuilding and we are currently working with an architect to design the new Fairmont. We would like to capitalize on the energy surrounding planning the new Fairmont to engage students in creative problem solving and give them an opportunity to have hands-on experience with manipulatives, getting hands-on experience working in two and three dimensional geometry, spatial visualization, and creative problem solving. Many of our students are unfamiliar with engineering and architecture as potential careers and we would like our students to have hands-on experience that lay the foundation for those careers.

Detailed project description: describe your project idea. Be sure to include examples of envisioned student activities (350 words max.)

We envision a project that will allow all of our students in grades 1-6 to engage in creative problem solving and building. The centerpiece of this project is a festival program from the Lawrence Hall of Science. Two members of the Lawrence Hall of Science will bring building materials to our school to be set up at different 12 stations in the multi-purpose room. Parent volunteers will be present at each station. Students in grades 1-6 will get a chance to participate in groups of about 12 and rotate through the stations. At each station, the small group of students will design, construct, and create in two and three dimensions. We have invited the architects from Hibser Yamuchi Architects, Inc. who are involved in the design of the new Fairmont to join us during this building festival and interact with the students as they work and they have expressed interest in doing so. There is a maximum of 150 students per 50 minute session; to accommodate all our 1-6th graders we plan to have 3 festival sessions. Within a day following the activity, students will reflect on their experience through individual writing (grades 3-6) or a group discussion with the teacher recording the main themes (grades 1-2). Prior to engaging in the Build It Festival, students will also be asked to think about the current structure of our Fairmont campus

and ways in which it could be improved. After the festival, students in grades 1-6 will write about one design element they would like to see included in the new Fairmont campus. We will compile the answers and share them with our architects, who are interested to read the student input.

The Build It festival meets at least one California State Science Standard in Investigation and Experimentation for each grade level. It also provides a very special opportunity for students to gain hands-on experience related to mathematical concepts (geometry, tessellations, proportion) and develop spatial visualization skills that are required for careers like engineering and architecture.

Project objectives: specifically state what students will learn and be able to do as a result of this grant (250 words max.)

All approximately 440 first through sixth graders, including special needs students, will use math and engineering principles to construct structures in two and three dimensions using supplies from the Lawrence Hall of Science Build It festival. Each child will be able to actively participate in a small group and creatively solve problems during their session. Students will also contribute ideas for the rebuilding of Fairmont school and meet the architects who are making the plans. In addition to providing space and resources for many students to work on a common problem, this event also brings in parent volunteers, classroom teachers, and architects, making it a community-building event.

The Build It festival will introduce new concepts of science and math in an engaging way and increase students' interest in science and mathematics and their awareness of architecture and engineering as careers they could pursue. Fairmont Elementary primarily serves low-income and minority students, populations underrepresented in STEM careers. Most students are unlikely to have opportunities to visit science museums or attend science enrichment classes. Bringing the Build It festival to the school provides all the first through sixth graders an engaging and hands-on experience related to science and mathematics, allowing them to experience first-hand the power and excitement of science and mathematics. Writing assignments following the event will allow students to reflect on their experiences, deepening their memories and allowing them to draw connections between the activities they participated in and the work done by architects and engineers.

Schedule of events: time-line of activities, starting in November, to show that the project is well-planned

November: Schedule a date for Build It festival from Lawrence Hall of Science. Coordinate date with architects so they can attend. Inform teachers about the date and the pre and post Build It activities for their classrooms.

One month to two weeks prior to festival: Find at least 16 parent volunteers. Coordinate with volunteer photographer to document event.

Week prior to Build It festival: Plan which festival session each class will participate in and coordinate with teachers. Communicate times and expectations with parent volunteers. Coordinate details with Lawrence Hall of Science staff as needed.

Day of Build It festival: Set up 12 long tables in multi-purpose room.

Project evaluation: how will you determine if your objectives have been met? Include at least one quantitative method (250 words max)

We will photograph our students participating in the hands-on activities during the Build It festival. Each student in 1st through 6th grade, including our special needs students, will have an opportunity to touch and manipulate materials, using their creativity to solve two and three dimensional challenges at several different stations. After the event, each 1st through 6th grade student at Fairmont will produce a suggestion for something to include in our new Fairmont campus. We will also have a written reflection about each 3-6th grade students' experience at the Build It event.

Budget outline: Please provide specific information on the materials to be purchased with the grant funds (150 words max.)

A Lawrence Hall of Science festival event with three 50 minute sessions costs \$1100 plus \$20 for travel to Fairmont School in El Cerrito. All of the grant funds (\$1,000) will be applied towards this expense and the remainder of the cost will be covered by the Fairmont PTA.