Family Engineering Night

K-12 Educational Final Report

SUMMARY STATEMENT

Family Engineering Night Starter Kit provided all the supplies necessary to organize and conduct a STEM oriented night. At this event, students and parents worked together to conduct simple, inquiry-based engineering activities. The easy-to-implement and exciting activities included in this kit were accessible and inviting to diverse audiences. As well as exposing students to enjoyable, STEM activities, this event engaged families in their children's education and built positive school/family bonds. Research shows that parental involvement increases student achievement outcomes, and family-oriented programs have a direct impact on student performance. Students and their families explored the ways in which science and engineering play a role in daily life. Family Engineering Night had a positive impact on families; it was very well received. In some cases, the parents got more out of it by learning how they could encourage their children's critical thinking skills. The PTA was so impressed; they purchased Family Science Night Starter Kit as their next family oriented, educational extra-curricular program.

FINAL RESULTS

23 families of grades 4 – 6 students participated in the inaugural event in March 2015 and 20 families of grades 1-3 students participated in a modified program in November 2015. Each student had 1 or 2 adults with them. As a sustainable program, the PTA purchased the consumable materials. Year-2 had 25 families participate in the May 2016 event.

At the welcoming table, families were given passports to be stamped for 16 mini-activities. There was a facilitating volunteer at each activity table who stamped the passport and was available to direct and answer questions. Each station took 3 – 5 minutes. Families moved at their own pace. At each table a card had on one side what to do and on the other side it had an explanation of the engineering process. A few of the most popular stations included family team effort to build the tallest pipe cleaner tower out. Another was a production line taking apart and putting back together ball point pens then doing a compare and contrast of efficiencies with assembly line vs. individual effort.

Some stations were changed for the subsequent Family Engineering Night for grades 1– 3; although it was essentially the same. More time was given at the mini-activities for the younger students.

EVALUTATION

Each family completed a feedback form and turned it in at the end of the event. There was a positive impact on families overall. Each family's mini-activity passports were full by the end of the night. There was a lot of engagement and families stayed for the whole event. The goal for this concept was to excite students about STEM, expose them to these fields in a hands-on and practical way, and improve student confidence in performing engineering and other scientific activities. This program offered an opportunity for parents and children to work and learn together, get parents more involved in their children's STEM education, and make science and engineering more accessible to families.

As a sustainable program, the PTA will purchase the consumable materials for subsequent events. The PTA was so impressed; they purchased Family Science Night Starter Kit as an additional family oriented, educational extra-curricular program.

PROGRAM ADMINISTRATION

Printed school flyers sent home in backpacks was the way the event was advertised to the selected age range of students. To advertise the event, Twitter was chosen since it is a popular form of communication at the Ledyard Center School as well as for the District. Twitter feeds were posted by the teacher and then hashtagged to the popularized, unofficial school #ledyardcenter21 and the district #whyledyardschools locations. Picture collages were included.

Dominion and/ or Millstone can retweet the newsfeeds since Dominion provided the seed money for Family Engineering Night and Ledyard Center School is in Millstone Power Station's location. The local newspapers did not send a reporter so we advertised to people in our town through Twitter. Social media is a popular form of communication in the community.

www.familyengineering.org is the website that the program and supplies were purchased