



# CURENT

CENTER FOR ULTRA-WIDE-AREA RESILIENT  
ELECTRIC ENERGY TRANSMISSION NETWORKS

# FAMILY ENGINEERING NIGHT

## A HOW-TO GUIDE



MADE POSSIBLE BY  
FUNDING FROM



**Family Engineering Night** is an event designed to promote engineering to K-8 students and expose them to a variety of fun real-world examples of how engineering affects the world around us. It can be a good resource for schools (or other organizations that work with young people) that are working to improve STEM awareness and that want to motivate students to consider engineering as an interesting, dynamic, and impactful future profession.

## FORMAT

The event is set up as a “Science Fair” style concept. You will need a lot of space, so the event is typically held in a school’s gymnasium or cafeteria. CURENT typically prepares 8-10 stations, each with a different engineering activity, and students and their families can rotate through the activities in any order that they choose. Upon arriving at the event, students are given an Engineering Night “Blueprint”, which acts as a guide for the stations and allows students to check off activities that they have completed. A promotional item (bag tag, hard hat, stylus, etc.) is awarded to students who complete all activities and turn in their Blueprint at the end of the night. The event typically lasts around 2 hours.

## \$\$\$ ANTICIPATED BUDGET (based on 200 students)

**Educational Materials:** \$200 (varies depending on the activities that you choose)

**Promotional Item (giveaway for student):** \$150

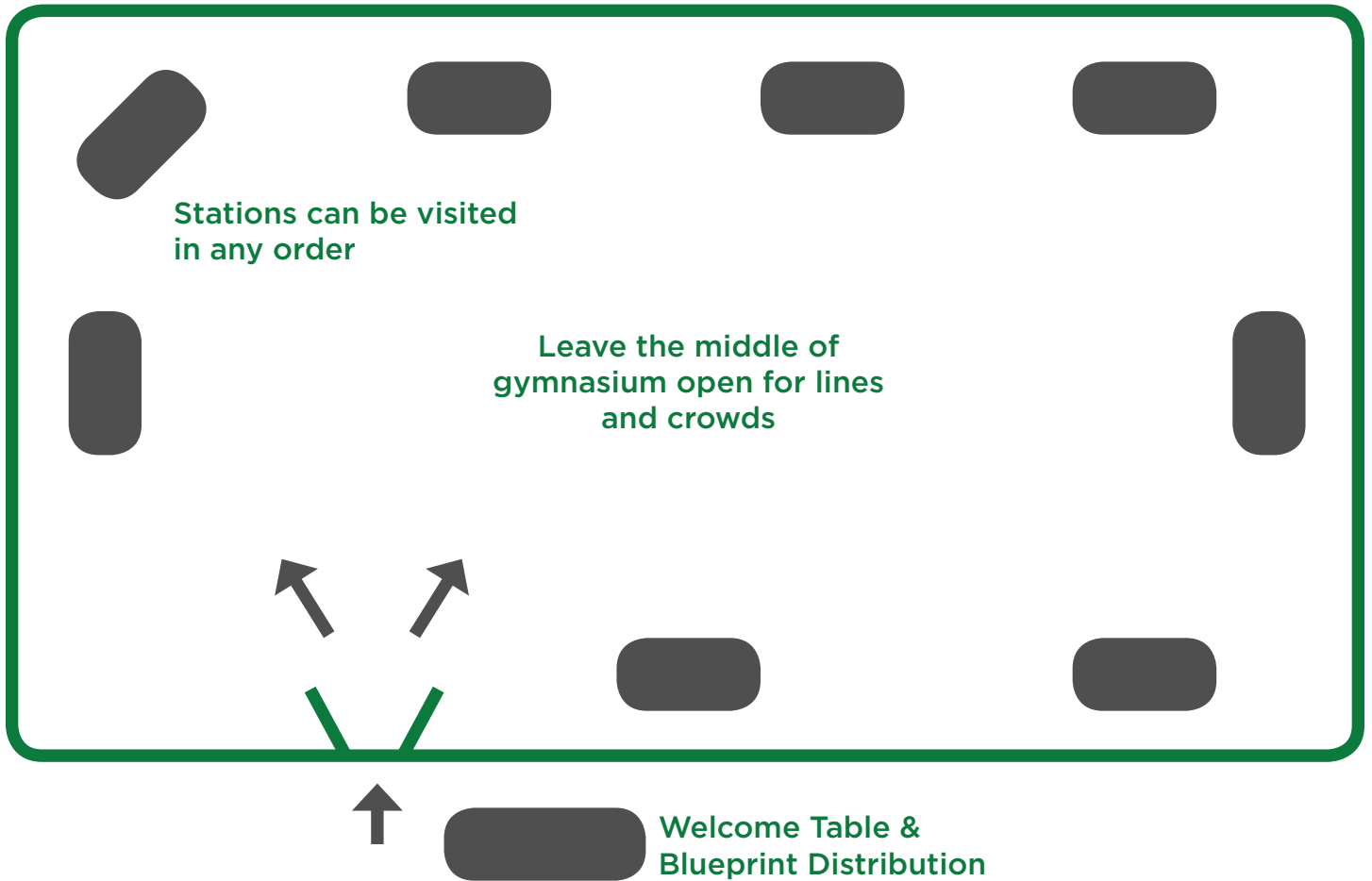
**Other costs to consider:** transportation to and from venue, labor costs, printing costs

**NOTE:** some schools prefer a meal to be included in the event to increase attendance. If dinner is to be provided, anticipate an additional \$600-\$700 of costs.

## YOU WILL NEED

- Activity book (we use a book from <http://www.familyengineering.org/>)
- At least two (2) teachers at each activity station
- Tables for each activity station
- Signage at each station. Include on each sign:
  - title of activity
  - a State Performance Indicator or science standard that the activity is addressing
  - the Engineering Design Process
- Engineering Night “Blueprint”
- Stickers or markers to use on the Blueprint

# EVENT LAYOUT



# BLUEPRINT EXAMPLE

We name each activity based on the field of engineering that it most closely resembles. This helps give students a real-world connection.

**ACTIVITY BLUEPRINT**  
please visit the stations in any order

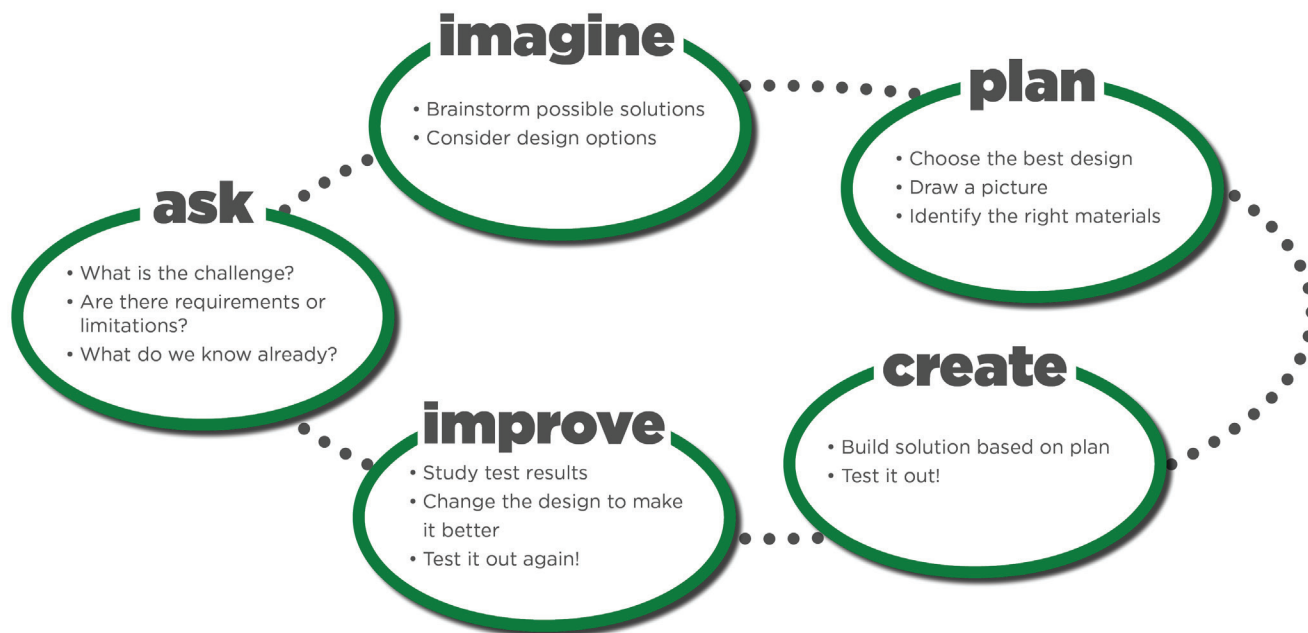
- Engineering Skills
- Civil Engineering
- Mechanical Engineering 1
- Biomedical Engineering
- Engineering Challenge
- Aerospace Engineering 1
- Aerospace Engineering 2
- Mechanical Engineering 2
- CURRENT (Solar cars, electricity)
- Robotics (L&N Academy)

CURRENT Vine Magnet School

The blueprint card is enclosed in a dashed green border. It features a gear icon on the top left and a microscope icon on the top right. The title 'ACTIVITY BLUEPRINT' is in large green letters, with the instruction 'please visit the stations in any order' below it. Two columns of station names are listed, each preceded by a dashed box icon. At the bottom, the 'CURRENT' logo is on the left and 'Vine Magnet School' with a hard hat icon is on the right.

## ENGINEERING DESIGN PROCESS

The engineering design process is an important method to explain to students at Family Engineering Night. This assists students in comprehension of how engineers think when working on projects. The diagram should be an integral part of how students work on the activities at Family Engineering Night.



## OTHER HELPFUL NOTES

- Work with principals, science teachers, and science curriculum supervisors to organize and plan the events. They will be a strong resource for selecting activities that are appropriate for their students.
- Some schools request that a meal is served before the event to increase attendance. These schools will sometimes have funding allotted to community events, but sometimes they will ask you to assist with funding.
- It is critical to work with school administrators and teachers to market the event **at least one month ahead of time**. Avenues for marketing include: phone calls from the principal, posters in school hallways, flyers included in take-home folders, event information in weekly newsletters to parents.
- Working with a local high school robotics team can be mutually beneficial and add an enhancement to Family Engineering Nights. These teams are usually happy to help, as it allows them to practice their skills with the public, and also provides an opportunity to showcase and market the robot. It is also an excellent visual and interactive addition for FEN participants. The robotics team should be assigned their own activity station at the event if they agree to participate.
- It is helpful to provide water and/or refreshments to the teachers that assist with the events. Also, check with school administrators about teachers receiving out-of-classroom credit for helping, as this provides extra incentive for teachers.
- Be creative! This is a collaborative experience, so be open to everyone's ideas on how to enhance the event for students.