Wheels and Cogs
Web II, Engineering I
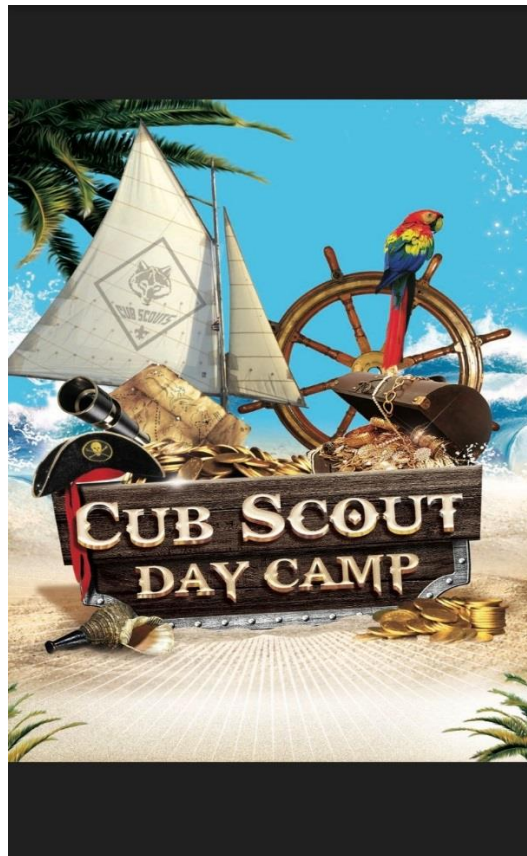
Station Volunteer's Guide

Volunteers do not necessarily have the time;

They have the heart. And YOU are the heart of our camp.
Thank you!

Please, please read this guide!

What is being covered at most stations is important so that the scouts earn the correct achievements toward rank or advancement. Some stations are JUST for fun, though and are not designed for earning anything.

HOW YOU present the material is not set in stone and can be presented in any manner that best suits you, as LONG AS THE REQUIREMENTS ARE MET FOR THE SCOUT.

…..in other words…

If you find a better way to accomplish the requirements or if the method we have outlined doesn't seem to be working…please feel free to change it! **This is only a guide…do what works best for you and the scouts coming to your station.**

One other thing to keep in mind – some stations will be visited by all ranks. That means you may have 6 year olds through 11 year olds and may have to simplify or intensify the methods to meet the skills and knowledge of all the scouts.

Thanks again – we are glad to have you as part of Harford Day Camp!

Station Procedures

- ***Read your schedule and BE PREPARED!***

- Monday: stations begin at 10:15am; Tues-Fri: stations begin at 9:15am

- Usually 2 dens at a time (max 24 youth),,,,,but there could be more

- Greet dens as they arrive. Ask for their cheer!!!

- **It is very important that you start and end on time**!

- **Each time limit is only 45 minutes. Late arrivals CANNOT stay late; it interferes with the overall schedule. If available, they can come back at a free time.**

- **Execute the station with energy and enthusiasm**! Let the scouts do as much for themselves as possible. It doesn't need to be perfect, they just need to Do Their Best!

- Remember the Alamo, um BEADS!! One bead/scout/participation.
  (*Beads can be given to the den leader for distribution.*)

- Take a breath, then prepare for your next group.

- ***<mark>Last station of the day</mark>***

Organize station items in the bag/container provided and store where directed. In case of inclement weather, take your station items to the nearest shelter where directed.

<mark>Complete a Station Evaluation (inside front cover). Return to the Admin tower or the Crouse Building.</mark>

Station Objectives: learn about the:

- different types of engineering careers.
- Engineering Process

- work on an Engineering project.
- Discussion and hands-on activities will complete this station.

Activity 1: Engineering Careers

After greeting the scouts, explain to them that they will be learning about careers in engineering. Use the posters to briefly explain the various careers. Explain your field of engineering any way you like.

Ask Scouts if they have any questions about careers in Engineering.

Civil engineering – design, construct and maintains structures (such as bridges, dams, roads)

Structural engineering – specializes with buildings, houses

Chemical engineering – specializes with chemical applications (like water filtration, fuel, nutrition)

Electrical engineering – specializes in the use of electricity (like solar, wind, battery usage, power drain, etc.

Mechanical engineering – specializes in how machines work (like computers)

Software engineering – specializes in logical processes (like what is used in computers)

Activity 2: Engineering a Raft
Materials: 1 square sheet of aluminum foil (10 x 10)
                    4 straws
                    4 popcicle sticks
                    1 balloon each
                    4 paper clips
                    2 toothpicks
                    1 piece 3" masking tape (cut into 3" pieces)
                    2 rubber bands

Talk about the Engineering Design Process:
Take out the "blueprints" of the different kinds of engineering disciplines to show the Scouts (pg 7 - 10). Tell them blueprints are designed to provide the story of what is to be done.

- The floor plan is typical for structural engineers.
- The Stratocaster is typical for mechanical engineers.
- Landscape blueprints are typical for civil engineers.
- Electrical schematic are typical for electrical engineers.
- Flowchart are typical for software engineers.

"Today we are ants, (Show the picture of the Ants on page 5) and we will be building a raft to help the colony survive a flood. Rafts are designed to float on water and hold more than its weight. We will need to design a raft using the following material." Show all the materials on the table. "Some will be useful to the design and others will not. The goal is to see how many marbles your craft can hold."

Job Requirements:
- Create a blueprint that describes how to build your craft.
    o Clarity helps with the approval process.
- Have your blueprint approved by a leader.
    o If the leader cannot tell how it is being built, he will ask you to fix your blueprint.
- Once approved, build your craft to match your blueprint.
    o Have your leader verify that your craft matches your blueprint.
- Test your craft
    o Who can hold the most marble?
- If you would like to change your design, you need to go back to your blueprint first.

Helpful Hints:
- Marbles roll. You need to account for balance in your raft
- Do you need all the materials? Some materials will not help.
- Straws have air in them. Remember that a craft is as strong as its weakest point.

WHEN EXPOSED TO WATER, FIRE ANTS CLUMP TOGETHER TO FORM A FLOATING RAFT.

HERE A RAFT, IN ITS EARLY STAGES MATERIALIZES IN A LABORATORY AQUARIUM.

1962 vintage re-issue Fender Stratocaster

LIVING ROOM

KITCHEN

STORAGE

GARAGE

BEDROOM **1**

BEDROOM **2**

LOBBY

STUDIO

GARDEN

R1 470Ω

LED1

POWER ON

TH1 THERMISTOR 10K

D1 1N4001

R2 33K

T1 BC548

T2 BC558

R6 2.2K

R5 47K

R8 470Ω

C1 10μ 16V

R3 470Ω

R4 560Ω

C2 0.04μ

7

6

2

4

IC1 NE555

8

3

1

5

C3 0.01μ

R7 470Ω

T3 SL100B

LS1 8Ω, 1W SPEAKER

+6V

GND

fire alarm circuit   electroschematics.com
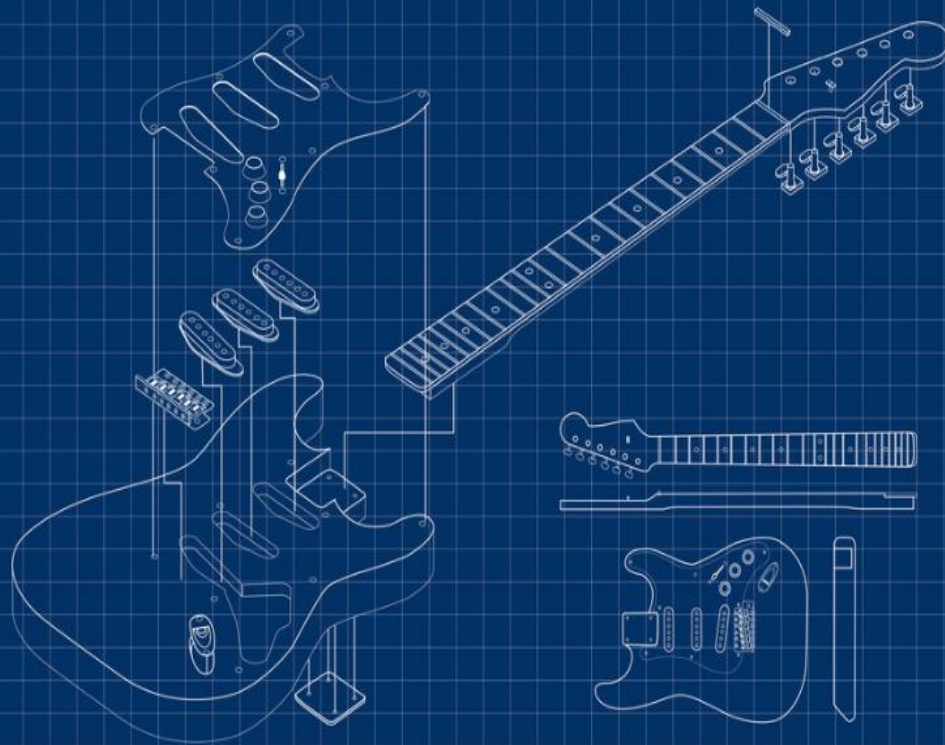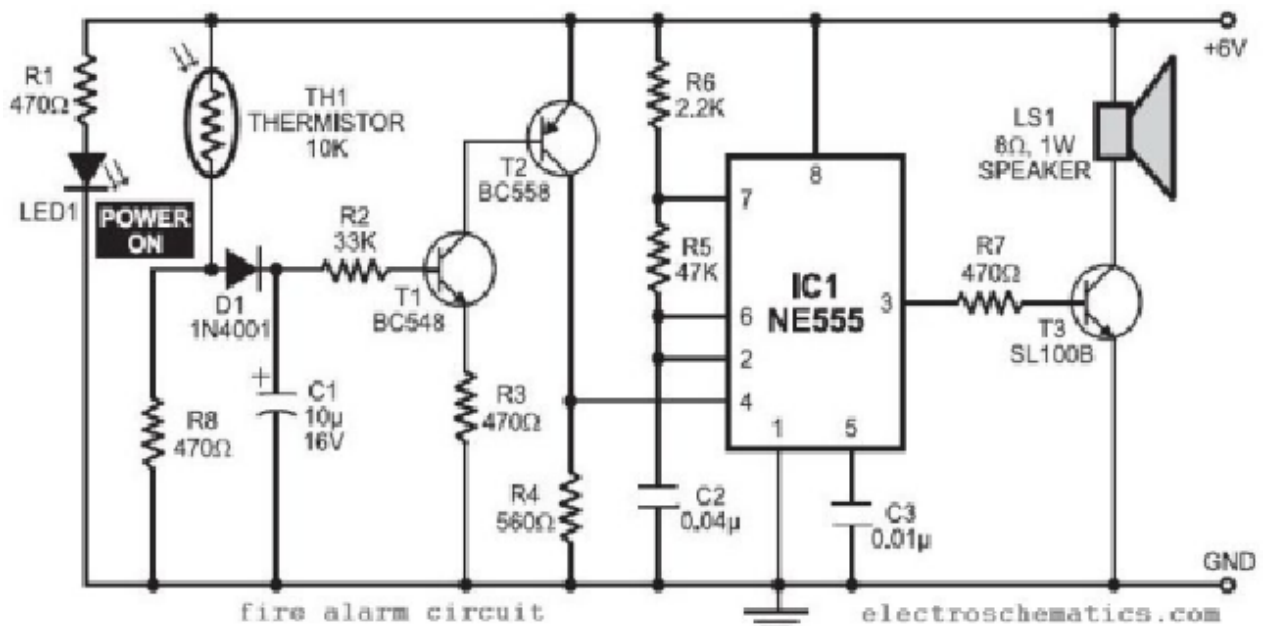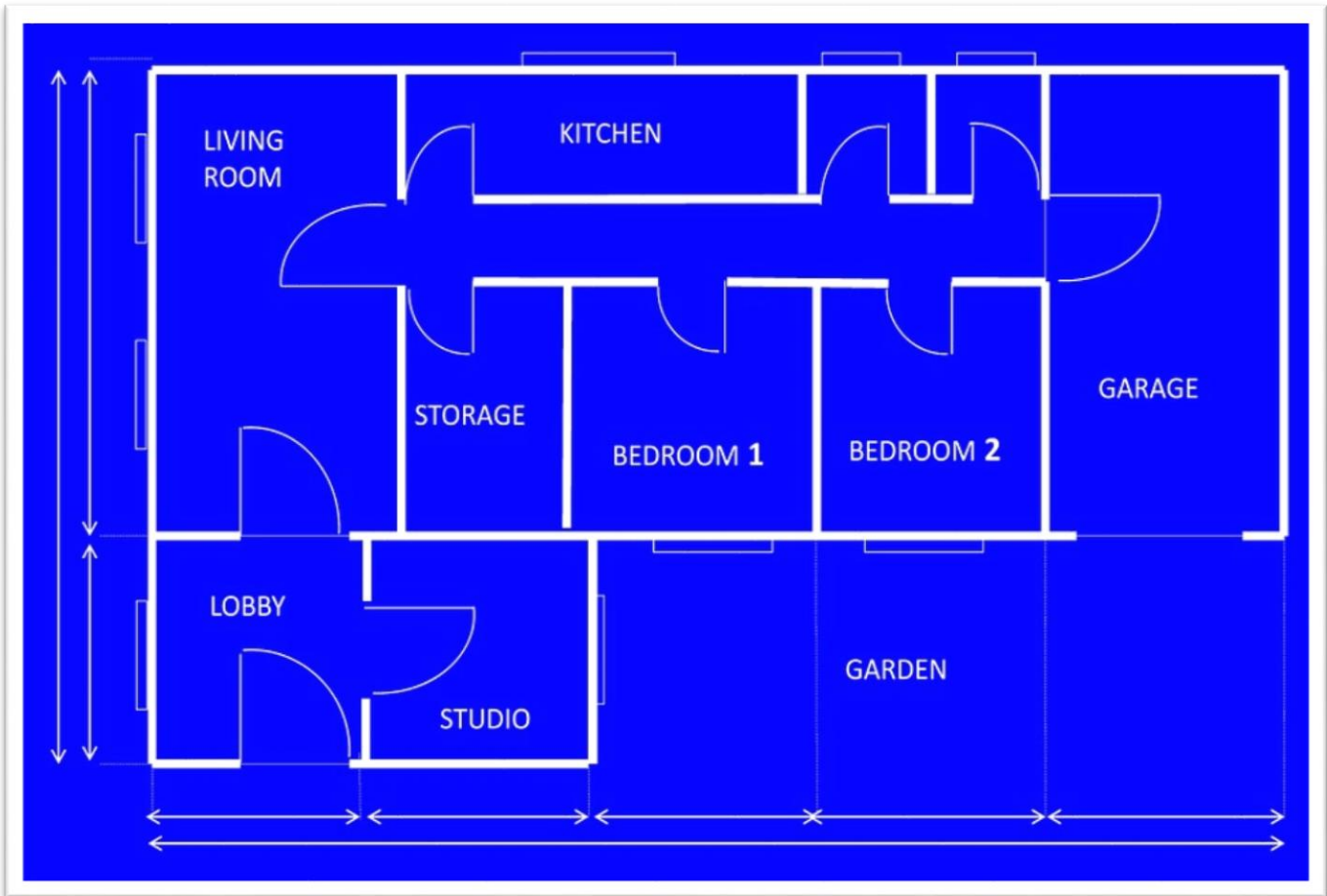
THE
PROCRASTINATION FLOWCHART

YOU ARE HERE

IS THERE WORK TO DO? → NO → ARE YOU HUNGRY?

HAVE YOU STARTED?

ARE YOU LYING?

IS THERE A DEADLINE?

WILL THERE BE MAJOR CONSEQUENCES IF YOU DO IT LATER?

FOR YOU OR SOMEONE ELSE?

IS THE DEADLINE WITHIN 6 HOURS?

IS THE DEADLINE WITHIN AN HOUR?

DO YOU "REALLY" NEED TO DO IT?

ANY WAY TO GET OUT OF IT?

IS IT MORALLY OBJECTIONABLE?

CAN YOU JUSTIFY IT ANYWAYS?

IS SOMEONE PAYING FOR YOUR TIME RIGHT NOW?

CAN THEY SEE WHAT YOU'RE DOING?

NEH, DO IT

EXIT LOOP AND RETURN TO START

ENTER PROCRASTINATION LOOP

HAS A SIGNIFICANT AMOUNT OF TIME PASSED?

FIND ANYTHING INTERESTING?

START TRAIL OF RELATED TOPICS

WIKIPEDIA

CREATE A SWARM OF OPEN TABS

OPTIONAL: WRITE COMMENTS

READ DOZENS OF COMMENTS

REDDIT/DIGG/OTHER

START TRAIL OF RELATED VIDEOS

READ DOZENS OF COMMENTS

YOUTUBE

STUMBLEUPON

BINGE BROWSE

RANDOMLY BROWSE

ARE YOU HUNGRY? → YES → FIND FOOD → NO / DO YOU HAVE TO COOK?

EAT FOOD

SOCIAL NETWORKS

LOOK AT PROFILES & UPDATES

DO YOU KNOW THEM WELL?

HAVE YOU DATED?

DO YOU STILL TALK?

GET IN TOUCH

LIVE VICARIOUSLY THROUGH THEIR PICTURES/STATUS

MAKE A LIST OF GOALS TO START RIGHT AWAY ...TOMORROW.

IS IT SOMETHING THAT MADE YOU FEEL LIKE YOU'RE NOT LIVING YOUR LIFE TO THE FULL POTENTIAL?

WILL OTHER PEOPLE CARE ABOUT IT?

TWEET, FACEBOOK, AND/OR BLOG ABOUT IT.

INTERNET!

DO YOU HAVE TO COOK?

DO YOU HAVE MONEY?

GO OUT TO EAT

ANYONE TO INSTANT MESSAGE?

ARE THEY INTERESTING?

MESSAGE THEM

CHECK STATUSES

SOMETHING YOU HAVE TO REPLY TO?

ANYTHING NEW?

CHECK EMAIL

MARK AS UNREAD

WAS THAT "NEW" EMAIL AN OLD ONE MARKED AS UNREAD?

TAKE CARE OF IT LATER

Translinail.se

RUBBER

PLAY

Son

Son

Jasmine

Son

Son

Son

Son

Son

Son

Son

Son

2.58AL

LAYER (F)

RESIDENCE

Son

ROSE OF
SHARON SOAL (SINGLE)

PATTERN CONCRETE (C)
RETAINING + 12"

WALL FOUNTAIN

- Dispose of anything no longer useable: please recycle when appropriate.
- Inventory your station (See the inventory sheet in the front pocket of the station guide)
- Return all items that you can to Crouse/trailer staff.
- You are ALWAYS invited to help pack up the camp!

Inventory

	opening	closing
Web II Engineering I, 2018		
station guide	1	
Raft making:		
Straws		
balloons		
Popsicle sticks		
paperclips		
Toothpicks		
Masking tape		
Rubber bands		
Aluminum foil		
Engineering posters?		
Easels?		