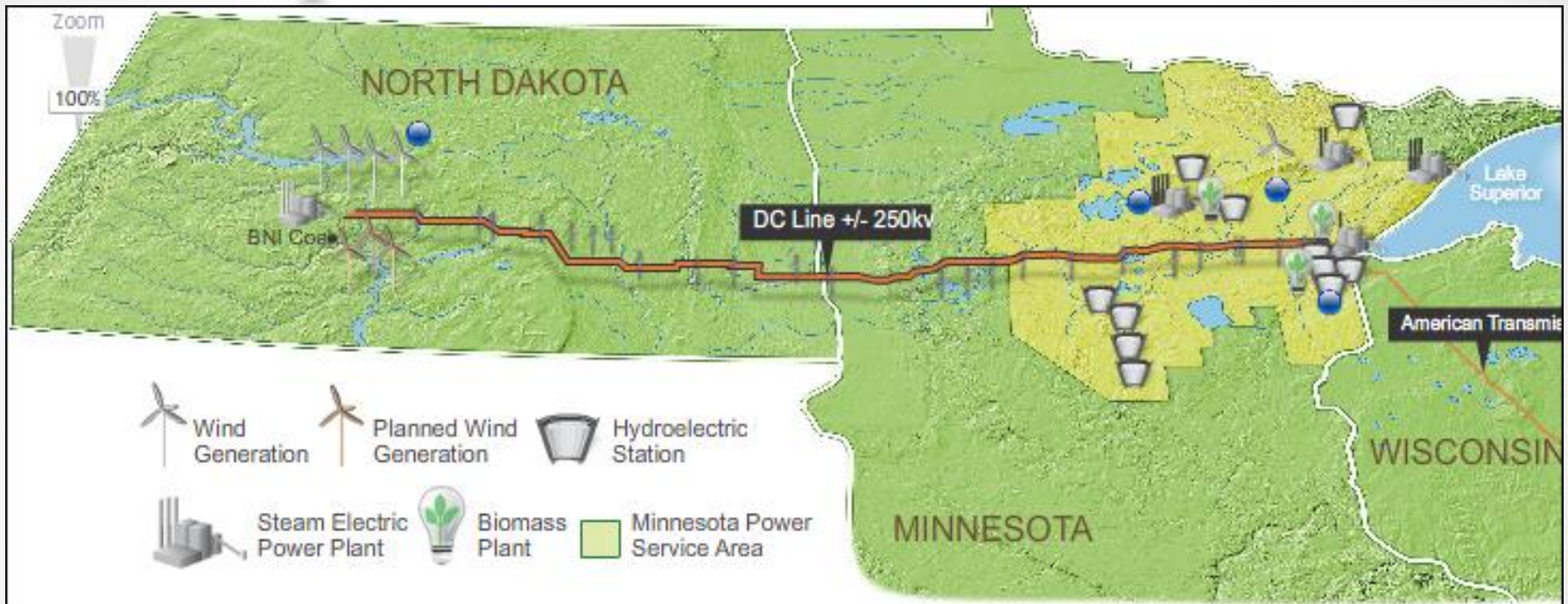






Minnesota Power's Intro to Operational Excellence



- 26,000 Square Mile Service Area
- 144,000 Customers – 16 Municipalities
- 60% - Large Power Load

Management Commitment

- **COO Attends NERC HPI Conference**
 - March 26-27, 2013
- **Dr. Merlo Gives Upper Management Presentation**
 - Duluth MN April 18, 2013
- **Safety Focus Utilizing HPI Tools**
 - Combined with current Zero Injury program
 - Operational Excellence is the result
- **Minnesota Power Operations Kickoff**
 - Grand Rapids MN October 30, 2013
 - 284 Attendees (Directors, Managers, Supervisors, Union Leads)
 - Dr. Merlo Headlines
 - CEO, COO, and Many VP's also in attendance.

MPO Fall Safety Meeting

**An introduction to HPI tools
and**

Operational Excellence

Planning Committee Decided On

Snap Circuit exercises

For Ages 8-108

Quick check

Everyone within the age range?

Have fun learning all about electronics
SNAP CIRCUITS[®] Jr.



SNAP CIRCUITS[®] Jr.

BY ELENCO[®]

BUILD OVER **100** EXCITING PROJECTS



AGES
8-108



Contains over
30 parts!
Create your own
exciting projects!



3 "AA" Batteries Required

Have fun learning all about electronics

Model SC-100



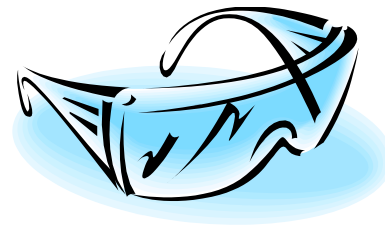
We're
Searching for
Volunteers

Overview

The hands on portion of our day will consist of building two circuits.

You will work in groups of four with the following roles:

1. Operator
2. Technician
3. Lead
4. Peer Check



Use of supplied PPE is required!

Take a moment to assign roles now.

Operator Role

Provides instructions to Technicians.

Read instructions as written.

May be asked to re-read instructions ONLY.

May NOT speculate on meaning or interpretation of instructions.

Technician Role

Use instructions received to build the circuit. You must follow only the Operator's instructions.

Must write down instructions given to you by the Operator.

May ask for instructions to be repeated ONLY.

May NOT ask for clarification or speculation on meaning of instructions from anyone.

Must carry out instructions to the best of your ability.



Lead and Peer Check Role

Lead and Peer Check's role is one of observation.

Neither are allowed to speculate how things should be done nor point out mistakes observed during the exercise.

Make notes of difficulties encountered in communication or construction of the project.

Notes will provide feedback at the end of both projects.



**Please open Project 1 envelope
and distribute roles.**

**You have 12 minutes to
complete this project.**

U1
MUSIC IC

U2
ALARM IC

U3
SPACE WAR IC

Motor

PRESS SWITCH

OFF ON

IC

Battery

2

Speaker

IC

IC

IC

3

IC

4

2 4 2

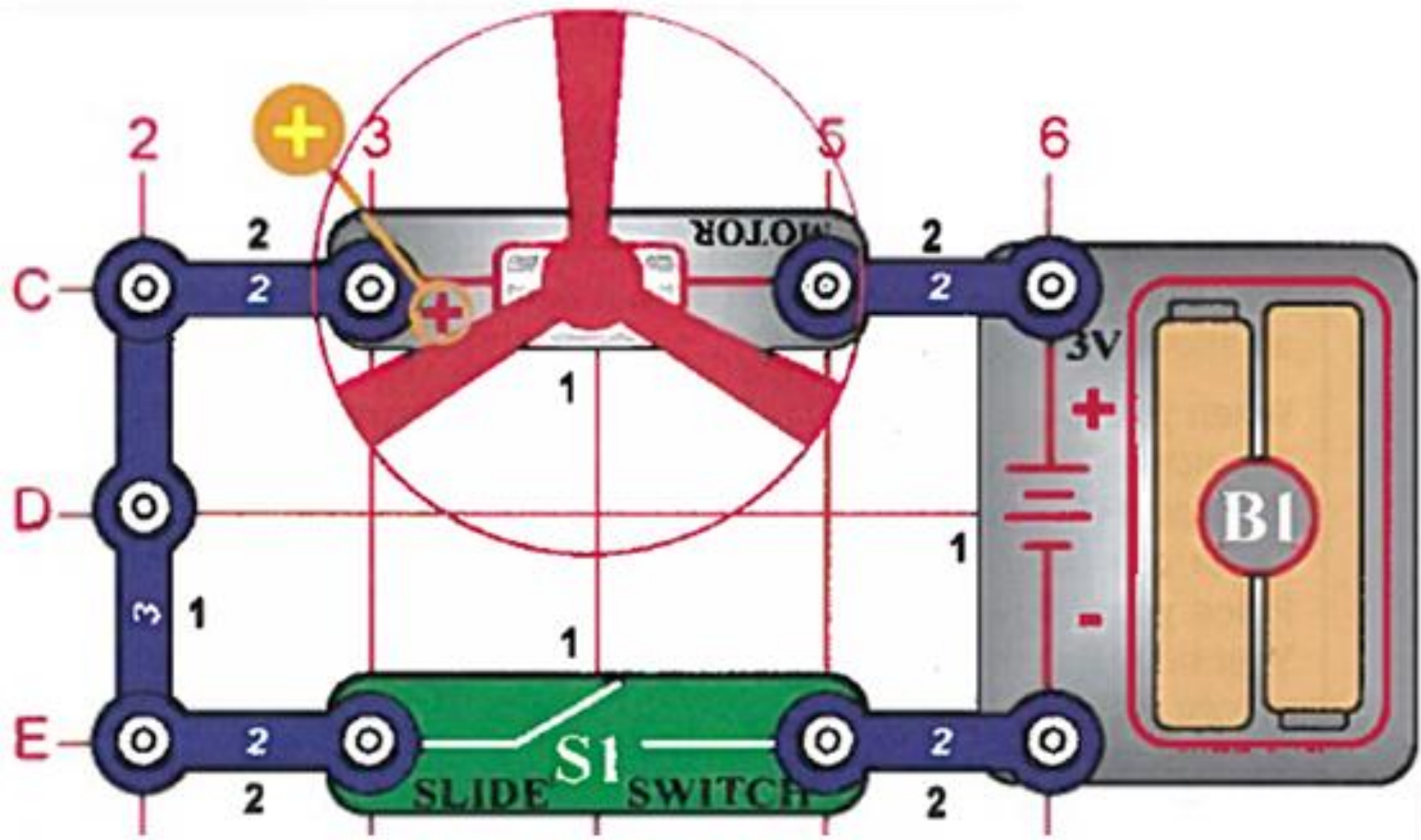
5

Instructions

- Place B1 Battery Holder onto board with the positive (+) terminal on E6 and negative (-) terminal on G6.
- Place S1 Slide Switch onto board with the “On” end connected to G5 and the “off” end connected to G3.
- Verify S1 Slide Switch is in the “Off” position
- Place M1 Motor Fan onto board with the positive (+) end on E3 and the negative (-) end on E5.
- Place 3-Snap Wire onto board from E2 to G2.
- Connect S1 Slide Switch to B1 Battery Holder using 2-Snap Wire from G5 to G6.
- Connect S1 Slide Switch to 3-Snap Wire using 2-Snap Wire from G3 to G2.

Instructions Continued

- Connect M1 Motor Fan to B1 Battery Holder using 2-Snap Wire from E5 to E6.
- Connect Fan Blade to M1 Motor Fan.
- Insert batteries into battery station.
- Turn on S1 Slide Switch.
- Turn off S1 Slide Switch.
- DID YOU FLY??



Project 2



Overview

You will again work in groups of four:

1. Operator
2. Technician
3. Lead
4. Peer Checker

Take a moment to re-assign roles now.

Operator Role

Provide instructions to Technicians. Instructions will be given one step at a time.

Enforce **Three-Way Communication** from Technicians. For example:

- Operator: *"Insert dilithium crystals into the warp drive."*
- Technician: *"I understand I am to insert dilithium crystals into the warp drive."*
- Operator: *"That is correct."*

May answer questions in reference to the instructions **ONLY**. **Questioning Attitude**

Check off each completed step. **Place Keeping**

Technician Role

Place grid guide under grid.

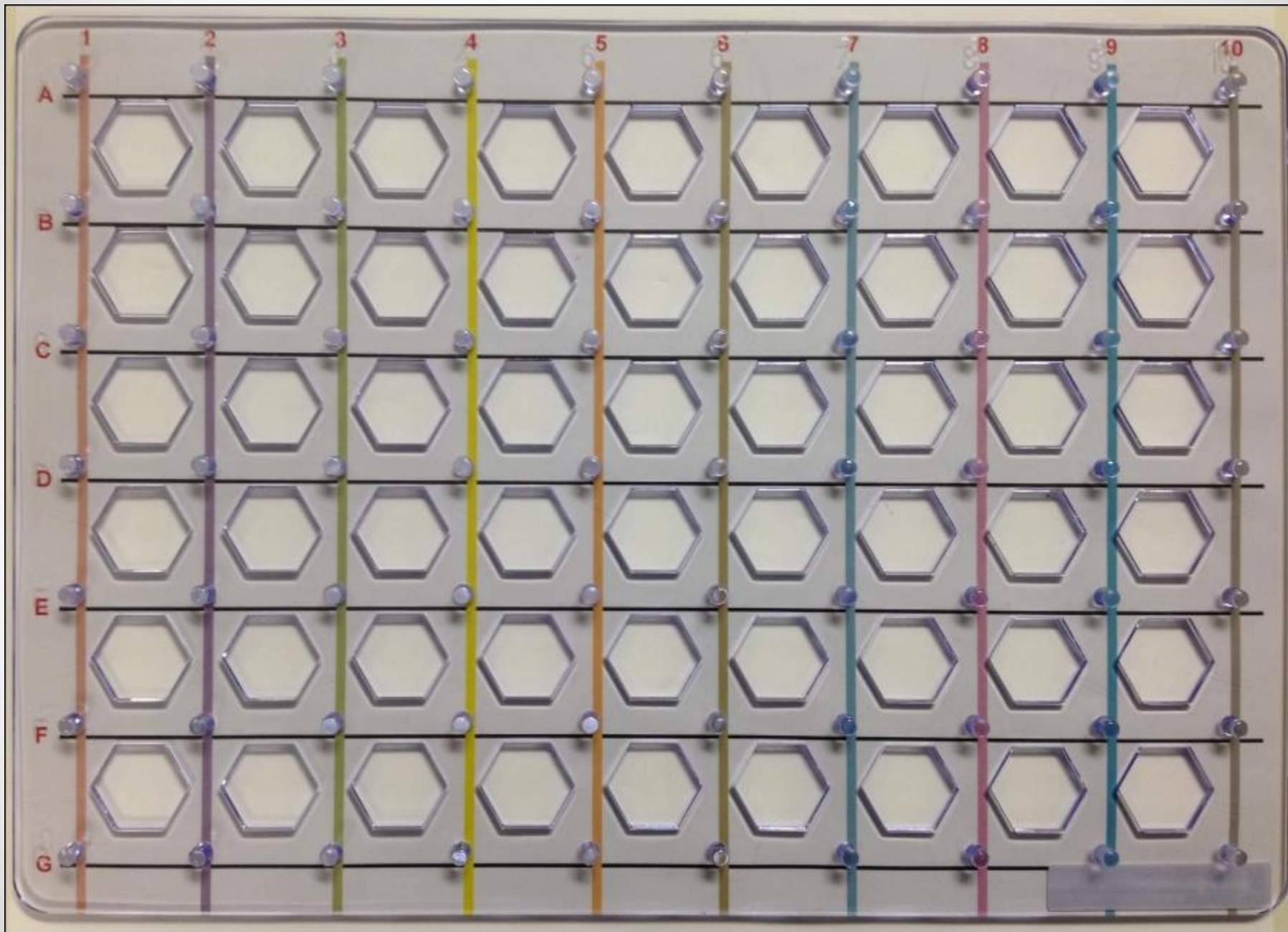
Use **Three-Way Communication** to receive instructions from Operator. Write instructions on sheet provided and repeat back to Operator.

Complete each step before requesting the next step.

Apply **Questioning Attitude**. If you do not understand an instruction, discuss it with team members.

Tell Operator when each step is completed.





Lead Role

Review **Job Briefing** highlighted in red. Have crew members signoff after complete.

Ensure safe work practices throughout entire project.
SEE IT – SAY IT

May ask and answer questions.

Ensure each step is done correctly. Note any deviations from instructions. **Concurrent Verification**





Daily Job Briefing Checklist (Tailgate)

Communicate zero injury safety performance on your job to your crew!

SWITCHING ORDERS ON BACK?

GOOD CATCH CARD FILLED ON BACK?

DOCK TALK Information	
Conducted by:	
Date: 10-30-13	Time:
Job Location/Address:	
Timeberlake Lodge	
144 SE 17th Street	
Grand Rapids, MN	
Intersection/GPS:	
E 911 #:	
Work Order: Project 2	
Switching Request #: NA	
One Call Ticket #:	

JSA: Yes No

What tasks are we doing today?
Our task today is to complete Project 2. The outcome of this project is to build a police siren controlled by light. The Operator will be (assign person). The Technician will be (assign person). The Peer Check will be (assign person). The Operator will provide instructions to the Technician. The Technician will assemble project using Operator's instructions only. The Peer Check will verify each step using diagram provided. We expect members to use Operational Excellence Tools.

What special PPE is needed?
STANDARD PPE SPECIAL PPE (List below)
Safety Glasses Do not remove them. If you have prescription glasses, for the purpose of this project, you can use them instead. But remember for all field operations, Z87 is the only way to go!

What special tools are needed?
Take a few moments to review the Lead, Operator, Technician and Peer Check's roles. Technician will orient the clear plastic grid on the grid guide provided. The Peer Check will place the parts on the placemat in accordance to the parts list provided.

Print Crew Name	Signature

Discuss each crew member's job duties.
 OTHER CREWS/CONTRACTORS IMPACTED? _____

Combined Tailgate? Yes No

How are we going to control energy sources?			
Clearance	Line De-energization	Hot Stick	
Cover-Up	Protective Grounding	Scope	Testing
Ground Mats	Foreign Feeds(solar/wind)	Review Switching?	
Do not install the batteries until the last step. Peer Check will verify that the S1 Slide Switch "ON/OFF" switch is in the OFF position.			

What hazards will require special precautions?				
Ladders	Lighting	Traffic	Housekeeping	Gas Cylinders
Fire	Water	Terrain	Unsecured Loads	Falling
Toxic Atmosphere	Insect /Tick Control	Animal	Weather	
Remember to complete housekeeping. At the completion of the exercise, put all parts in their appropriate place in the box.				
SEE IT - SAY IT! Should you see anyone do anything unsafe, be sure to speak up.				
Should there be a fire, head to the nearest exit and go the the assembly area. Does anyone remember where the AED was located?				

What special work procedures do we need to consider?			
Confined Space	Trenching/Excavating	Line Clearance/Tree Trimming	
Aerial Lifts	Meter Testing/Installation	Crane	Rigging
Be sure to follow the Operator's and Chuck's instructions completely or we may not get our circuit put together correctly. Procedure Use and Adherence.			
Is there anything else that we need to discuss?			

What is the voltage range? 1.5 Volts

YES	NO	Overhead	YES	NO	Underground
<input type="checkbox"/>	<input type="checkbox"/>	Hot Work	<input type="checkbox"/>	<input type="checkbox"/>	Non Auto
<input type="checkbox"/>	<input type="checkbox"/>	DC	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Local Disconnect

Reviewed by Supervisor (initial) _____

Peer Check

Flag the project by pulling out parts that will be used to build circuit. Place parts on placemat for Technician.

Flagging

Will have a diagram of the finished circuit. Do not share diagram with others. Use it only to ensure the correct circuit is being built. Peer Check

Verify steps are completed correctly with diagram provided.

Verify instructions one step at a time, after each step is completed.



SEE IT – SAY IT


All roles can Stop When Unsure and be empowered to have a Questioning Attitude.

Ready? Begin!

Please open Project 2 envelope and distribute roles.

You have 20 minutes to complete this project.

GO!



0:00

TECHNICIAN

The **Technician's** duties are to assemble the project from the instructions given by the Operator. You must use Three-Way Communications when receiving the instructions from the Operator. Write down each step (using form to right). You can question a step if there is any confusion. Tell Operator when each step is completed.

Rules:

- You must follow and write down the Operator's instructions.
- You must use Three-Way Communication.
- You must complete one step at a time.
- You can ask questions from team members if an instruction is confusing.



After Step 10, subtly take off safety glasses.

Steps	Directions	Completed

*** After Step 10, subtly take off safety glasses.

NOTE: Instructions after Step 18 DO NOT need to be written down. Continue to use Three-Way Communication with Operator.

LEAD

The **Lead's** duty is to conduct the Job Briefing before the project begins. Use form in the packet. The Lead will inform Peer Check to flag only parts that will be used during this exercise. Refer to Peer Check's parts list. The Lead will collect notes and observations to be used for the discussion at the end of the projects.

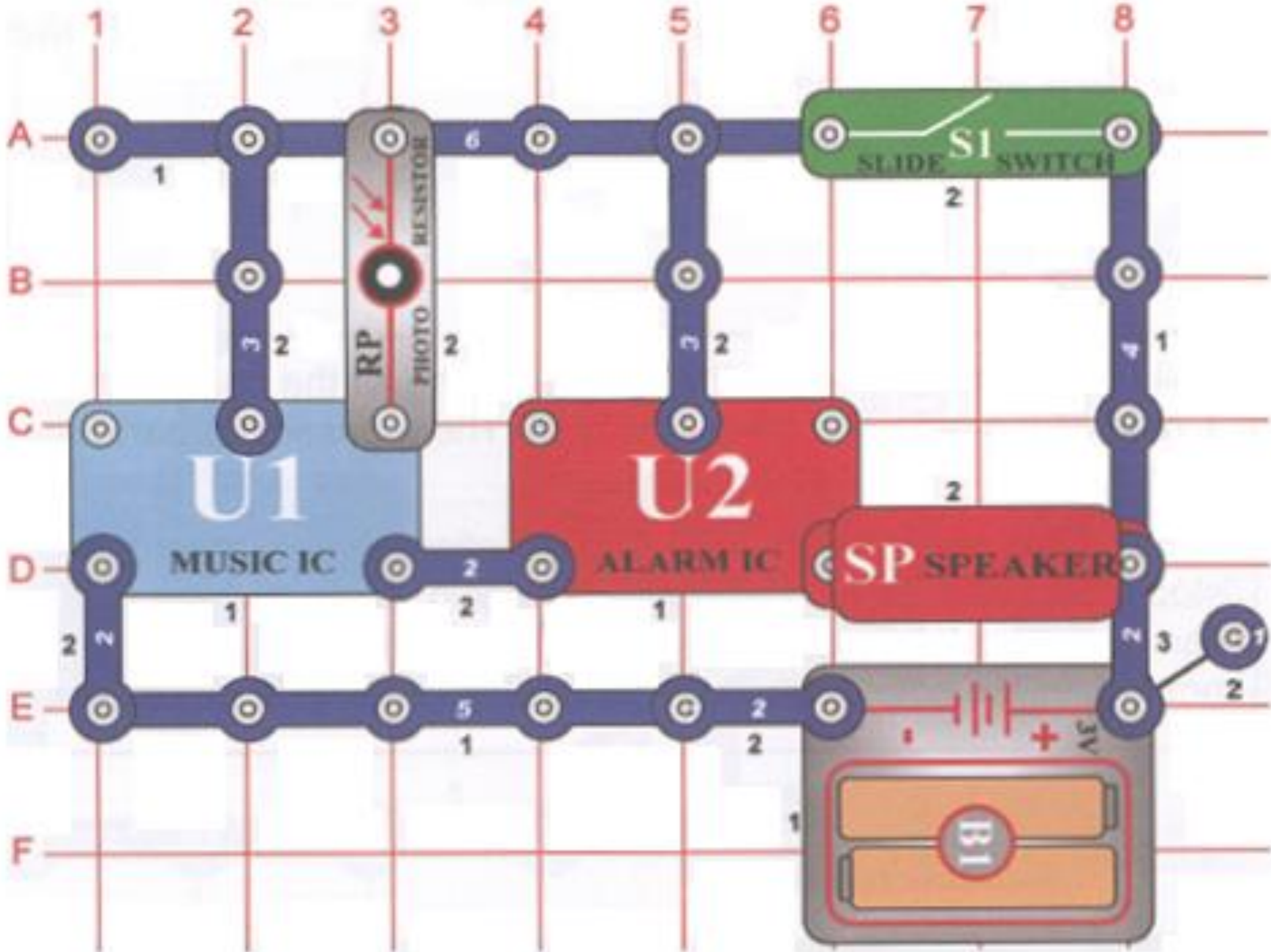
OBJECTIVE: *To build a police siren that is controlled by light.*

Rules:

- Ensure Three-Way Communication and Peer Check (Concurrent Verification) is completed after each step.
- You can help your team members complete the project.

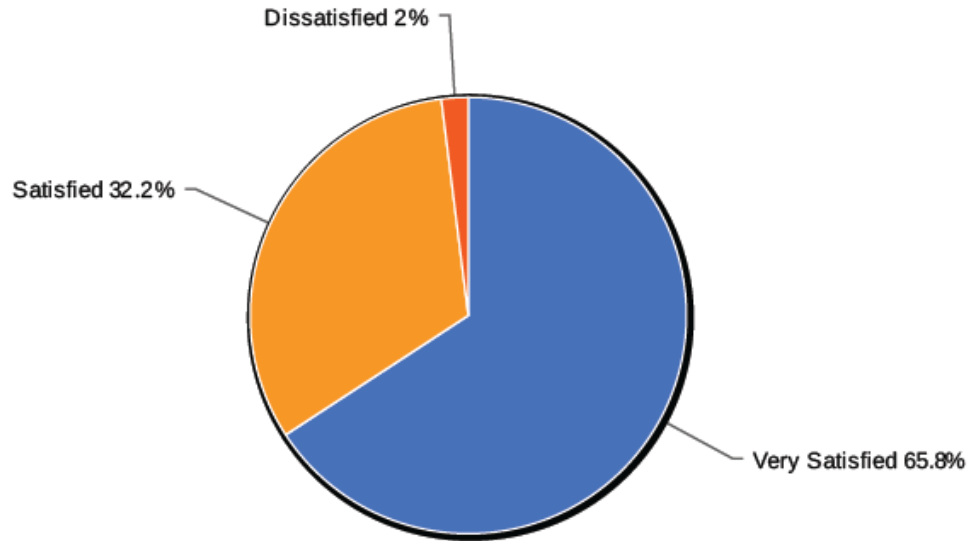
Step	Repeat 3-Way	Task Completed	Peer Check	Observation
	"X" if Yes	"X" if Yes	"X" if Yes	
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
<i>NOTE: Remaining steps DO NOT require Technician to write down instructions, but continue to ensure Three-Way Communication between Operator and Technician.</i>				
19				
20				
<i>NOTE: There will be a siren sound.</i>				
21				
<i>NOTE: There should be a siren sound that starts and then stops after 15 to 20 seconds.</i>				
22				

*NOTE: If the siren sound does NOT stop, check to make sure all terminals are secured.
 *** You have successfully completed the desired circuit if you are able to control the siren sound by removing and covering the RP Photoresistor with your finger.*



Survey Results

4. Overall, how satisfied were you with James Merlo's presentation, Improving Human Performance: From Individual to Organization?



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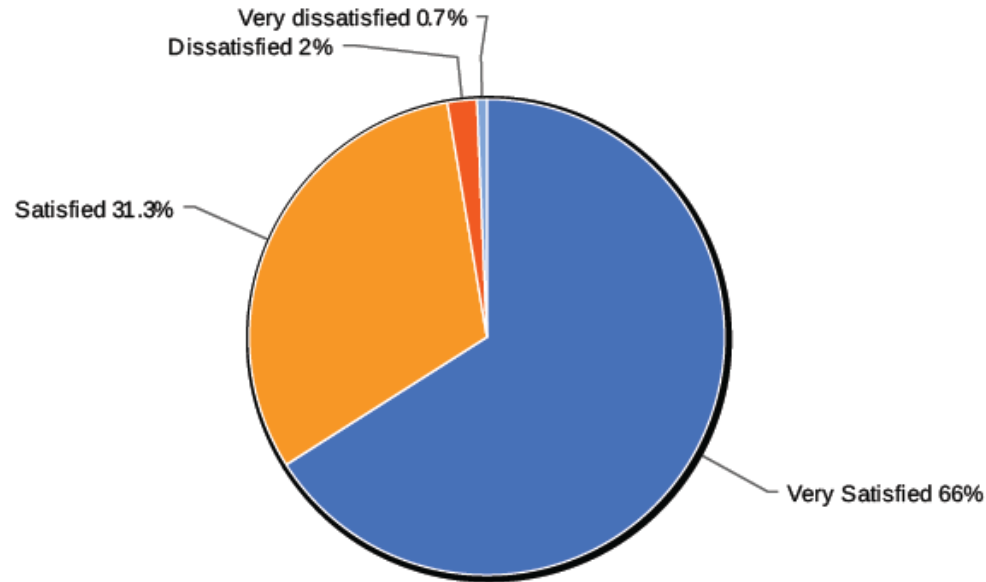
Value	Count	Percent %
Very Satisfied	100	65.8%
Satisfied	49	32.2%
Dissatisfied	3	2.0%
Very dissatisfied	0	0.0%

Statistics

Total Responses	152
-----------------	-----

Survey Results

6. Overall, how satisfied were you with the Breakout Session?






6. Overall, how satisfied were you with the Breakout Session?

Value	Count	Percent %
Very Satisfied	99	66.0%
Satisfied	47	31.3%
Dissatisfied	3	2.0%
Very dissatisfied	1	0.7%

Statistics

Total Responses 150

Survey Results

1	playing games is just not fun at training
1	Helped people understand how difficult it is to make sure you understand the oral instructions perfectly.
1	I have a new respect for this aspect of the business. It was also an effective way to forge relationships between strangers.
1	relates to alot of the small detail that lead to mistakes..very good kinda silly at first but got the point across
1	Needed to bring home the point about how easy it is to loose focus on safety if your not paying attention or your focused on something else.
 1	The snap-circuits activities really demonstrated the benefit of the tools -- and the roles that individuals play. It also was a very good team-building exercise.
1	I really enjoyed this session and liked that it wasn't a "maintenance knowledge required" task! I felt comfortable knowing that I was only to do what was on the instructions and didn't have to bring my own knowledge of electronics & switching (or lack thereof).
1	It was interesting to see how three way communication and detailed work procedures make a difference.
 1	Nice change of pace and really neat teamwork exercise to drive home the main concepts of the day. Learn - then do.
1	This was interactive, fun, and helped reinforce the importance of having structured processes in place to ensure accuracy.
 1	The breakout session was one of the best I've been to at a training session. This is due to being hands on and interactive at the table. It was also FUN!



OPERATIONAL EXCELLENCE

Job Briefing

Allows the employee to think through and plan a job using their knowledge to make the work as safe as possible. Employees apply Defense-in-Depth controls and Operational Excellence tools to prevent errors that lead to events. Employees involved in performing the work should prepare and lead Job Briefs.

Are You Ready Checklist

- ✓ Am I qualified to perform the task?
- ✓ Am I fit for duty?
- ✓ Do I understand the task?
- ✓ Can I do it safely?
- ✓ What error likely situations do I have?
- ✓ What Operation Excellence tools will I use?
- ✓ What can go wrong?
- ✓ What conditions stop this task?
- ✓ Am I ready to start the work?
- ✓ Job Briefing?

OPERATIONAL EXCELLENCE TOOLS

Procedure Use and Adherence

Know usage level; Follow intent and directions; Place Keeping

Stop When Unsure

Maintain Questioning Attitude; Stop the activity; Obtain help from knowledgeable source

Three Way Communication

Sender speaks clearly; Receiver repeats; Sender acknowledges

Flagging/Labeling

Use when similar components can get confused; Clearly identify the component

Concurrent Verification & Peer Checking

Immediate impact on people, equipment and materials is possible; It is intended to address every aspect of the task before any manipulation of the device is made

Independent Verification

Delayed verification by others; Should only be used when an immediate consequence to the plant or equipment is unlikely if first action is performed incorrectly



ANY
QUESTIONS
?