



# TECH CHALLENGE Guidelines

Refer to this information as you prepare for the Tech Challenge.  
Please encourage your school to participate in this unique event. Remember to involve everyone - actors, directors, technicians, students and faculty - in this "esprit de corps" activity.

- Tech Challenge is a competition for school teams.
- The teams may have from three to seven members.
- If a school has enough interested students, two or more teams may enter. Students may only participate on one school team though.
- Each event must be done by at least one member of the team. If several students do the event, the lowest time will be used for the team score.
- Each event must be done as rapidly as possible, consistent with both accuracy and safety.
- The participants' SCORE is the number of seconds/minutes it takes to accomplish the task with penalty seconds added for errors, depending upon the severity of the error(s).
- Each event may be done twice and the lowest score (time) is counted.
- Some events have a START/FINISH LINE five feet from the place where the event is to be done; and time starts and finishes as the contestant leaves and returns to the line, unless otherwise noted.
- The events are distributed around the room with space between each so that audience members can view the activity.
- This book contains event descriptions for multiple events. Each year different events will be selected as the standard events for that year and will be posted before the event. Another event, the mystery event, will not be revealed until the students arrive on site. The mystery event will be one of the other events in the book or something new that the committee would like to try.

## POSSIBLE EVENTS

Over the past years, the following are the many events that have been included in the Tech Challenge. Each year five to seven of the events will be selected for that year's competition.

Hang & Focus A Light (individual) .....	2
Wire a Connector (individual) .....	3
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Thimble and Sleeve – Nicopress (individual) .....	5
Knot Tying (individual).....	6
Strike and Set up Props (individual).....	7
Sew a button (individual).....	8
Costume Change (done both as an individual and a 2-person event).....	9
Sound System Setup (done both as an individual and a 2-person event).....	10
Folding a Drop (team event).....	11
Tape a Ground Plan/Laying out a Floor Plan (team event) .....	12
Leg a Platform (2-person event).....	15
"Hollywood" Hard-Cover Window Flat Construction.....	16
Hang a Truss (2-person event) .....	17
Cable Roll Relay (Team event) .....	20

## HANG & FOCUS A LIGHT (INDIVIDUAL)

Prior to the event, the two lighting units have been hung, turned on, and focused. With the framing shutters, two geometric shapes are created (a rectangle, rhomboid, or parallelogram--18 to 24 in. on each side) on the wall with tightly focused beams. The shapes were enclosed with masking tape. The targets are now ready for the event.

When the contestant walks up to the starting line he should find a wrench, gel frame, work gloves, and the ellipsoidal spotlight. The fixture should be set on the floor with pan screw loosened, shutters pushed in, lens all the way in and focus knob finger tight, C-clamp bolt where it was last left and yoke bolt tightened.

**Notes:** For safety, gloves must be worn at all times. Contestants may bring their own gloves. Units will heat up during the event. Generally have 2 units in use, with 2 units on the side. That way if units gets too hot, can change for one that has cooled down. A floor fan helps. Student should unhang the fixture upon completion of the event, but it helps to have a technician who presets the light the same way for each contestant.

### Prop List

- 1 Goal Post setup (boom stand)
- 2 6" Ellipsoidal Spots with c-clamps, and a VERY SHARP-EDGED BEAM
- 2 gel frames
- 2 "Crescent" wrenches
- Enough #12 or #14 stage cable to "Juice up" the units, with "Stage" to Edison adapters
- 1 roll of 3/4" or 1" masking tape to make targets on the wall and to make start/finish lines
- 2 pairs of lighting electrician's work gloves

**Maximum Time Limit: 5 minutes**

### Recommended Sequence

1. Leave start line.
2. Put on gloves and collect tools and colorframe
3. Locate Fixture
4. Hang Fixture
5. Hand tighten C-clamp
6. Install safety cable
7. Wrench tighten C-clamp
8. Check yoke bolt and tighten if necessary
9. Open shutters
10. Plug in fixture
11. Position fixture – rotation and basic focus
12. Lock it: tighten pan screw and tilt knob
13. Sharp Focus
14. Shutter cuts to shape
15. Drop in gel frame
16. Back to Finish line

### Penalties - Add the following time to a score if:

Instrument upside down	15 s.
Out of Sequence (tightened before safety)	10 s.
Forgot safety cable	10 s.
Not tight:	
C-clamp	15 s.
Vertical hold – yoke handles, wing nuts	10 s.
Horizontal hold – pan screw	10 s.
Focus knob and barrel knob	5 s.
Shutters not open before plugging in	5 s.
Shutter cuts (personal judgment)	5 s. per cut
Sharp focus (personal judgment)	5 s.
Forgot gel frame	3 s.
Placing any items in mouth	10 s.
Dropping items	10 s.
Gloves not worn at all times	25 s.
Disregard of rules – goes for the shortcut	25 s.

### WIRE A CONNECTOR (INDIVIDUAL)

With all parts laid out in front of the participant, the participant will pick up a wire sample, strip the main cable covering back at least 1", and then strip each of the 3 wires back ¼". Each of the 3 wires will then be screwed to the appropriate terminal in the plug – Ground, Hot, and Neutral. Once secured, the cover plate will be screwed in place. Task completed, the contestant signals with hands-up.

#### **Prop List**

- 1 wire stripper
- 1 screwdriver
- 6" lengths of 12/3 SO wire (Qty. per # of students)
- Stage Pin or Edison plugs with all components (Qty. per # of students x 2 attempts)

**Maximum Time Limit: 5 minutes**

#### **Recommended Sequence**

1. Pick up a wire sample,
2. Strip the main cable covering back at least 1",
3. Strip each of the 3 wires back ¼".
4. Each of the 3 wires will then be screwed to the appropriate terminal in the plug – Ground, Hot, and Neutral.
5. Once secured, the cover plate will be screwed in place.
6. Task completed, the contestant signals with hands-up.

**Penalties - Add the following time to a score if:**

Placing any item in the mouth	10 s
Keeping tools and plug in full view of the judge at all times	3 s
Incorrect wiring polarity –penalty per each wire incorrectly wired	15 s
Incorrect length of cable outside sheath removed – allowance of $\pm\frac{1}{4}$ "	5 s
Incorrect length of insulation removed from bare copper – allowance of $\pm\frac{1}{4}$ " (Too much copper)	5 s
Copper not twisted right direction around screw to secure – copper fraying	5 s ea. screw
Screws not properly tightened on copper	5 s
Cover on connector not properly secured	5 s
Not enough strain relief	5 s
Disregard of rules – goes for the shortcut	25 s.

## **THIMBLE AND CROSBY (INDIVIDUAL)**

[Alternate with Nicopress]

Without "saddling a dead horse" (putting the saddle of the clip on the short end of the cable), the participant must make a loop on the end of the cable around the thimble and put the clips on correctly (with the nuts tightened down as tightly as the situation will allow). Note: Fold the cable back approx. 4-3/4 in.; put the clip on about 1/2 in. from the end. Insert the thimble and then affix the clip as tightly against the thimble as possible. Tighten down all nuts. The judge will check the nuts for tightness and the correct placement of the thimble and the two cable clips.

### **Prop List**

- A 3-foot or longer 1/4 wire rope
- 2 cable clips--Crosbys--extras would help in the event that one gets lost
- A thimble
- A small "Crescent" wrench (adjustable open-end wrench)
- A table (approx. 3' x 3') on which to work

**Maximum Time Limit: 5 minutes**

### **Recommended Sequence**

1. Fold the cable back approx. 4 3/4 in.
2. Put the clip on about 1/2 in. from the end.
3. Insert the thimble.
4. Affix the clip as tightly against the thimble as possible.
5. Tighten down all nuts.
6. Task completed, the contestant signals with hands-up.

The judge will check the nuts for tightness, and correct placement of thimble and the two cable clips.

### **Penalties - Add the following time to a score if:**

Placing cable in the mouth	10 s
Safe handling of tools	10 s.
Not placing the thimble on the cable	10 s.
Tightness of nuts – too loose, too tight	5 s. each nut
Length of cable folded back(3-3/4"): ± 1" allowed	5 s.
Length of cable beyond last clip(1/2"): +2",-0" allowed	5.s
Thimble so loose it falls out or can be pushed out	10 s.
Correct orientation of clips – clip saddle on the live wire (Do not saddle a dead horse.)	20 s.
Wire outside of saddle	5 s.
Disregard of rules – goes for the shortcut	25 s.

## THIMBLE AND SLEEVE – NICOPRESS (INDIVIDUAL)

[Alternate with Crosby]

The participant must make a loop on the end of the cable around the thimble and put the sleeve on correctly using the swaging tool provided. Note: Fold the cable back approx. 4-3/4 in.; put the sleeve on about 1/2 in. from the end. Insert the thimble and then, using the NICO press tool, crimp the sleeve as tightly against the thimble as possible. Check the first crimp for “go” or “no go”. The judge will check for sleeve for number of crimps, location and correct placement of thimble and the sleeve. The judge will cut the wire after each attempt, giving the student his loop, and leaving the coil ready for the next student.

### **Prop List**

- A coil of 1/4 wire rope (enough for 120+ attempts)
- A thimble per attempt
- A sleeve per attempt
- An appropriate sized NICO press tool for the sleeve

**Maximum Time Limit: 5 minutes**

### **Recommended Sequence**

- Fold the cable back approx. 4\_3/4 in.
- Put the sleeve on about 1/2 in. from the end.
- Insert the thimble.
- Affix the sleeve as tightly against the thimble as possible.
- Crimp the sleeve with the swaging tool
- Check the first crimp for “go” or “no go”.
- Make the second crimp with the swaging tool.
- 7. When the task is completed, the contestant signals with hands-up.

The judge will check the sleeve for number of crimps, location and the correct placement of thimble.

### **Penalties - Add the following time to a score if:**

Placing items in the mouth	10 s
Safe handling of tools	10 s.
Crimping order not correct	10 s.
It is a “no go” on the Go/ No Go Gage	10 s.
Crimping of sleeve not correct	10 s.
Thimble Placement incorrect	10 s.
Dead end incorrect	10 s.
Disregard of rules – goes for the shortcut	25 s.

## KNOT TYING (INDIVIDUAL)

From the start line, the participant picks up one end of the heavy line and ties a clove hitch on the pipe, with a half-hitch locking knot. Then, using the loose end of the heavy line and a lighter line, the participant must tie the two lines together with a sheet bend (a tailor's knot). When finished tying the two lines together, the participant must tie a one-handed bowline around his/her waist. The participant may use their own weight to pull the line taut to facilitate the one-handed bowline. However the other hand must be on their hip/head/in the air -- at no time should the contestant touch the line with both hands. Raising both hands in the air signifies completion.

### Prop List

- A 6 - 8-foot length of a lightweight rope (sash, ¼" tie)
- A 6 - 8-foot length of a heavier rope (hemp),
- A U-shaped pipe structure attached to the table (that the knots are tied on)
- A table to clamp the pipe structure to and hold the ropes
- Additional practice ropes always a plus

**Maximum Time Limit: 5 minutes**

### Recommended Sequence

1. Leave the start line
2. Tie a clove hitch on the pipe stand.
3. Add two half-hitch locking knots on the clove hitch.
4. Tie the other to the first with a sheet bend (a tailor's knot).
5. Pulling back on the rope, wrap the line around the waist and using only one hand, tie a one-handed bowline around his/her waist (Once rope is around the waist, one hand should go in the air, on their head, behind their back – for the rest of the event the contestant can only use one hand)
6. Task is completed when contestant signals with hands-up. (They should be tied to the pipe using both ropes)

Contestant unties knots only after judge has examined all knots.

**Penalties - Add the following time to a score if:**

Placing rope in the mouth	10 s
Failure to follow the sequence: Clove hitch, half hitch, sheet bend, bowline	15 s.
Incorrectly tied knot – penalty each incorrect knot	10 s.
Touching the line with the second hand while tying the bowline	5 s.
Min. 4-6" tail on all knots	5 s each
Outside bowline – tail should be on the inside of the loop	5 s
Backward sheet bend – tails should be on the same side	5 s.
Disregard of rules – goes for the shortcut	25 s.

## STRIKE AND SET UP PROPS (INDIVIDUAL)

Prior to the event, the "on stage" table should be covered with the "Act I" table cloth (A) and set-up with the "Act I" set of plates, utensils and so forth. The "off-stage" table should be set-up with the "Act II" dishes, cloth, etc. on their marks.

Participant may have time to look over off-stage props and photo of setup. No touching or presetting props.

The contestant must leave the starting line and clear the table cloth, dishes, glasses, and etc. from the "on-stage" table and place them on the pre-set marks on the off-stage table. The "Act II" table cloth (B) should be taken from the "off-stage" table and set in place on the "on-stage" table. The "Act II" plates, glasses and so forth should then be taken from the "off-stage" table and moved to the correct marks on the cloth covering the "on-stage table." Once set, the contestant runs to the finish line. Judging includes how fast and how accurately the plates, glasses, and so forth are placed on the marks of both tables.

### Prop List

- A table, 3x3 square or round, can be larger (for on-stage table)
- A table, can be 3x6 (offstage prop table)
- 2 table cloths (A & B) for on-stage table, marked with tape to indicate placement of dishes, etc.
- Two place settings (plates, utensils, water glasses) and perhaps, a vase of flowers (on-stage table for Act I)
- Brown wrapping paper cover on off-stage table, marked with both table settings
- Two place settings (plates, coffee cups, utensils) and perhaps a sugar bowl and creamer (for Act II)

**Maximum Time Limit: 5 minutes**

### Recommended Sequence

1. Leave the start line
2. Clear the tablecloth, dishes, glasses, and etc. from the "on-stage" table
3. Place them on the pre-set marks on the off-stage table.
4. The "Act II" tablecloth (B) should be taken from the "off-stage" table and set in place on the "on-stage" table.
5. The "Act II" plates, glasses and so forth should then be taken from the "off-stage" table and moved to the correct marks on the cloth covering the "on-stage table".
6. Once set, the contestant runs to the finish line.

Next contestant can change from Act II back to Act I.

**Penalties - Add the following time to a score if:**

Dropped prop	10 s.
Picking up or carrying props in a manner that would make noise	5 s.
Picking up or carrying props in a manner that would risk dropping or breaking	5 s
Placing any item in the mouth	5 s
Excessive noise on/offstage	5 s.
Wrong prop placed on table	5 s.
Proper position - missed mark on set table	5 s. per item
Tablecloth not set in proper orientation – US/DS	3 s.
Tablecloth not straight on set table - corners flipped	3 s.
Proper position - missed mark on prop table	3 s. per item
Silverware upside down or turned around	1 s. per item
Moving table off mark	5 s.
Disregard of rules – goes for the shortcut	25 s.

### SEW A BUTTON (INDIVIDUAL)

Prior to the event, the needle will be threaded, but not knotted.

The contestant will sew a button with shank on the material provided. The participant must loop through the button hole at least 4 times and wrap around the shank four (4) times. Both ends must be knotted. When complete the participant says, "Done!"

#### **Prop List**

- 4" x 4" square of muslin or cotton cloth
- Shank style button
- Basic cotton thread
- Large head needles
- Band-aids (optional)

**Maximum Time Limit: 5 minutes**

#### **Recommended Sequence**

1. Pick up needle & thread, and knot the end.
2. Sew through the cloth, through the shank and back through the cloth until the thread has looped thru the cloth and shank 4 times.
3. Sew through the cloth and wrap the thread around the thread under the shank 4 times and then sew back through the cloth
4. Pull tight and tie final knot.
5. Snip the thread above knot and set needle down.

**Penalties - Add the following time to a score if:**

For each loop under the 4 required through the shank	5 s.
For each wrap under the 4 required around the thread	5 s.
Knot missing at beginning	15 s.
Knot missing at end	15 s.
Button failure on judges inspection - button pulls away from fabric – loose - button pulls off	5 s. - 25 s.
Puckered fabric	10 s.
Thread wrapped around shank	5 s.
Disregard of rules – goes for the shortcut	25 s.



## **COSTUME CHANGE (DONE BOTH AS AN INDIVIDUAL AND A 2-PERSON EVENT)**

The contestant(s) is (are), in this event, a member(s) of the Wardrobe crew and must help an actress/actor to make a quick change. The contestant(s) must leave the start line, run to the performer and help him/her out of the "Scene 1" costume and into the "Scene 2" costume (which is hanging on the rack next to the changing area). The "Scene 1" costume must then be hung correctly and neatly on a hanger, which is then hung from the clothing rack before the contestant(s) may depart for the finish line.

### **Prop List**

- 1 costume rack with hangers
- 1 live model (actor/actress)
- 1 Scene 1 outfit with a minimum of 4 different elements (dress, pants, shirt, jacket, shoes, hat, wig, belt...)
- 1 Scene 2 outfit with a minimum of 4 different elements (dress, pants, shirt, jacket, shoes, hat, wig, belt...)

**Maximum Time Limit: 5 minutes**

### **Recommended Sequence**

1. Leave the start line
2. Give 15 seconds of prep time before letting performer in
  - a. Actor will enter even if contestant isn't ready
  - b. Actor will be fully dressed in scene 1 outfit
3. Actor can help during change.
4. Assist the performer out of scene 1 outfit (actor can help)
  - a. Undo fastening
  - b. Help lift over head or off arms
5. Assist the performer into scene 2 outfit
  - a. Do fastenings – must be completely buttoned, zippered, laced
  - b. Put on hats or accessories
6. Hang up properly the scene 1 outfit
7. Once set, the contestant runs to the finish line.

Actor should be told ahead of time, that if the contestants ask for his assistance, such as please unbutton the shirt, then he may help, but if not asked, he shouldn't do anything. ☺

**Penalties - Add the following time to a score if:**

Judging based on speed, smoothness of change and final look.	
Not prepped in 15 sec. – misses actor's entrance	2 s
Scene 2 clothing properly placed on actor (snapped, hooked, laced...)	10 s
Missing accessories – hat, scarf...	5 s
Unnecessary roughness of the actor – judges' call	5 - 15 s
Scene 1 outfit not hung up or placed on hangers properly	5 s
Dropping hanger, unnecessary noise backstage	5 s
Disregard of rules – goes for the shortcut	25 s.

## **SOUND SYSTEM SETUP (DONE BOTH AS AN INDIVIDUAL AND A 2-PERSON EVENT)**

The contestant in this event must set up a simple sound system to play pre-show music and then allow a speaker to use a microphone. The participant leaves the start line and begins to set up the mixing board and amp (or a powered mixer). Then he/she sets up a speaker and connects it to the amp/mixer. Once the speaker is connected, the participant connects the CD player/MP3 player to the mixer and checks the connection by playing a sound clip from the player. Next the microphone gets connected to the mixer and tested (Test 1, 2, 3...). Once finished, the contestant runs to the finish line.

### **Prop List**

- 1 mixing board and amp (or a powered mixer)
- 1 speaker (and stand if needed)
- Appropriate speaker cable to attach speaker to mixer
- 1 CD player or MP3 player
- Appropriate cable to player to mixer
- 1 handheld mike and stand
- Appropriate cable to attach mike to mixer
- Power cables as needed
- \* may include various other cable types to confuse and dismay

### **Maximum Time Limit: 5 minutes**

### **Recommended Sequence**

1. Leave the start line
2. Set up the mixing board and amp (or a powered mixer)
3. Set up a speaker and connect to the amp/mixer
4. Connect the CD/MP3 player to the mixer
5. Play a sound clip from the device
6. Connect the microphone to the mixer
7. Test the microphone
8. Once finished, the contestant runs to the finish line.

### **Penalties - Add the following time to a score if:**

Something does not work – speaker, player, microphone	10 s
Cables not in the correct input/output	5 s.
Feedback	5 s
Music or microphone too loud	5 s
Buy a hint! (if they really get stuck)	5 s.
Disregard of rules – goes for the shortcut	25 s.

## FOLDING A DROP (TEAM EVENT)

The team must work together to fold a drop for storage. Template taped out on floor to represent shipping box size (or use the box that it was stored in)

Prior to the event, the backdrop will be crumpled in a disorganized pile on the stage floor. The Team should pull the backdrop out flat on the floor. Next, they should determine the Center Line on the backdrop. If it does not have one, they will need to fold the drop in half in order to determine the center point. The team members should plan who will be at each corner as the backdrop is folded and who should check for the crispness of each fold or pleat. The drop when sufficiently narrow can be rolled to the top (where the tie-lines are) OR folded. The tie lines should be visible no matter which system is used. When complete, the drop should be placed on the template to ensure proper size of folding (May also be actual storage box). Once completed the Team returns to the finish line and one member says, "Done!"

### Prop List

- 1 Painted drop or flat black curtain (avoid pleated for ease of event or add if looking for difficulty)
- Room enough to layout a drop/curtain and allow students to move

### Maximum Time Limit: 5 minutes

### Recommended Sequence

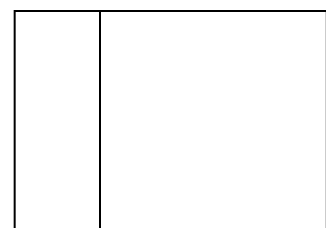
1. Leave the start line
2. Pull the drop out flat on the floor
3. Determine the Center Line
4. Make first fold to one end
5. Continue folding till appropriate width
6. Drop should be folded to the top (where the tie lines are). The label should be plainly visible.
7. Carry the folded drop and place it on the template/in the storage box
8. Team returns to the finish line and one member says "DONE!"

### Penalties - Add the following time to a score if:

Folding with the good side facing outwards	10 s.
Way off center – not folding on center line	5 s.
Bad folds or pleats	5 s.
Tie lines not visible/accessible	5 s.
Judgment of team work - no arguments	5 s.
Label not visible	5 s.
Folded drop size too big	5 s.
Disregard of rules – goes for the shortcut	25 s.

### Template:

Taped out two rectangles on the floor to represent two sizes of folded drop (or could use two different size boxes – larger and smaller). If team was able to fold drop and fit within smaller limits, got a bonus of 10 seconds off their time.



## TAPE A GROUND PLAN/LAYING OUT A FLOOR PLAN (TEAM EVENT)

Using the ground plan from the scenic designer, the Stage Management Team creates a full-scale ground plan of the production's set on the floor of the Rehearsal Studio. This representation includes where all the furniture and other scenic elements will be placed during the production. This full-scale ground plan is then used by the director and actors during the rehearsal period to set blocking and get used to the boundaries and limitations of the set.

In this challenge, your team must successfully use the Scenic Designer's ground plan (provided in packet) to tape out the set in the given space. A center line, plaster line and stage area will be provided for you to use as a reference. It is your job to use various colored tapes to signify different parts of the set you are taping out. The scale ground plan will be in  $\frac{1}{2}''=1'0''$  and a scale rule, tape measures, spike tape, etc will be provided. As this is a timed event, we are looking for how efficient the team works together and accurately tapes the ground plan.

Measurements can be done in advance.

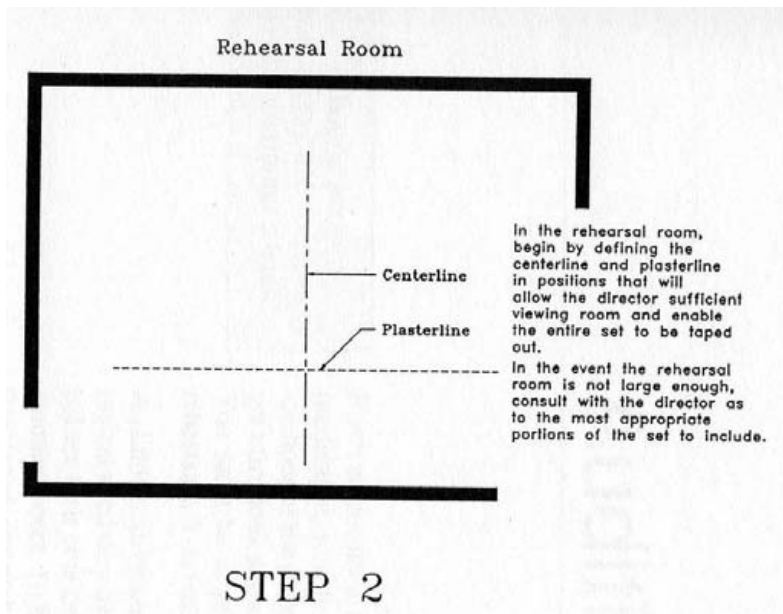
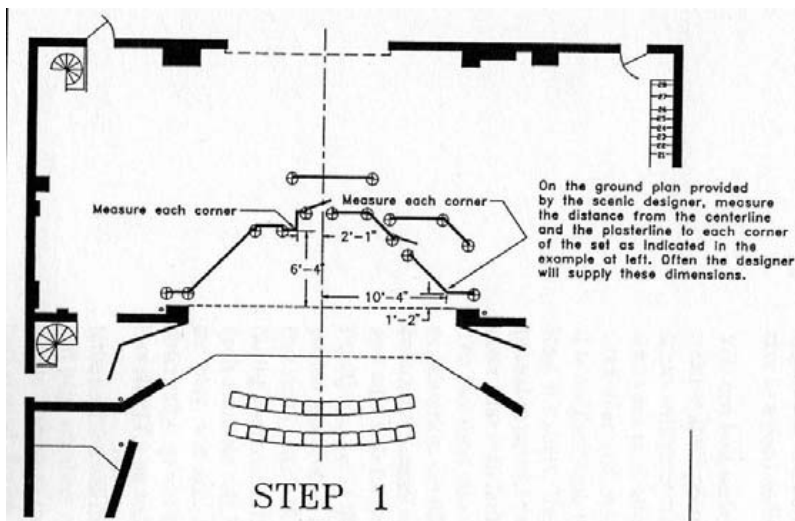
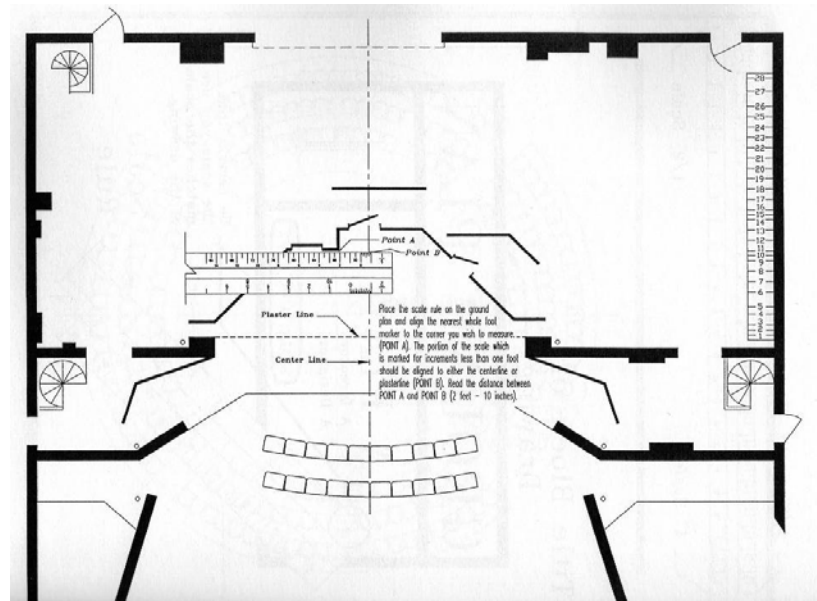
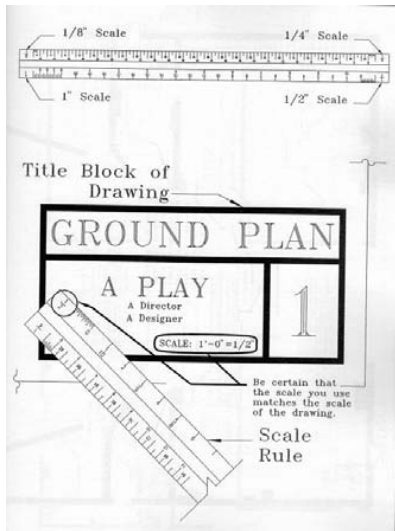
**Maximum Time Limit: 15 minutes**

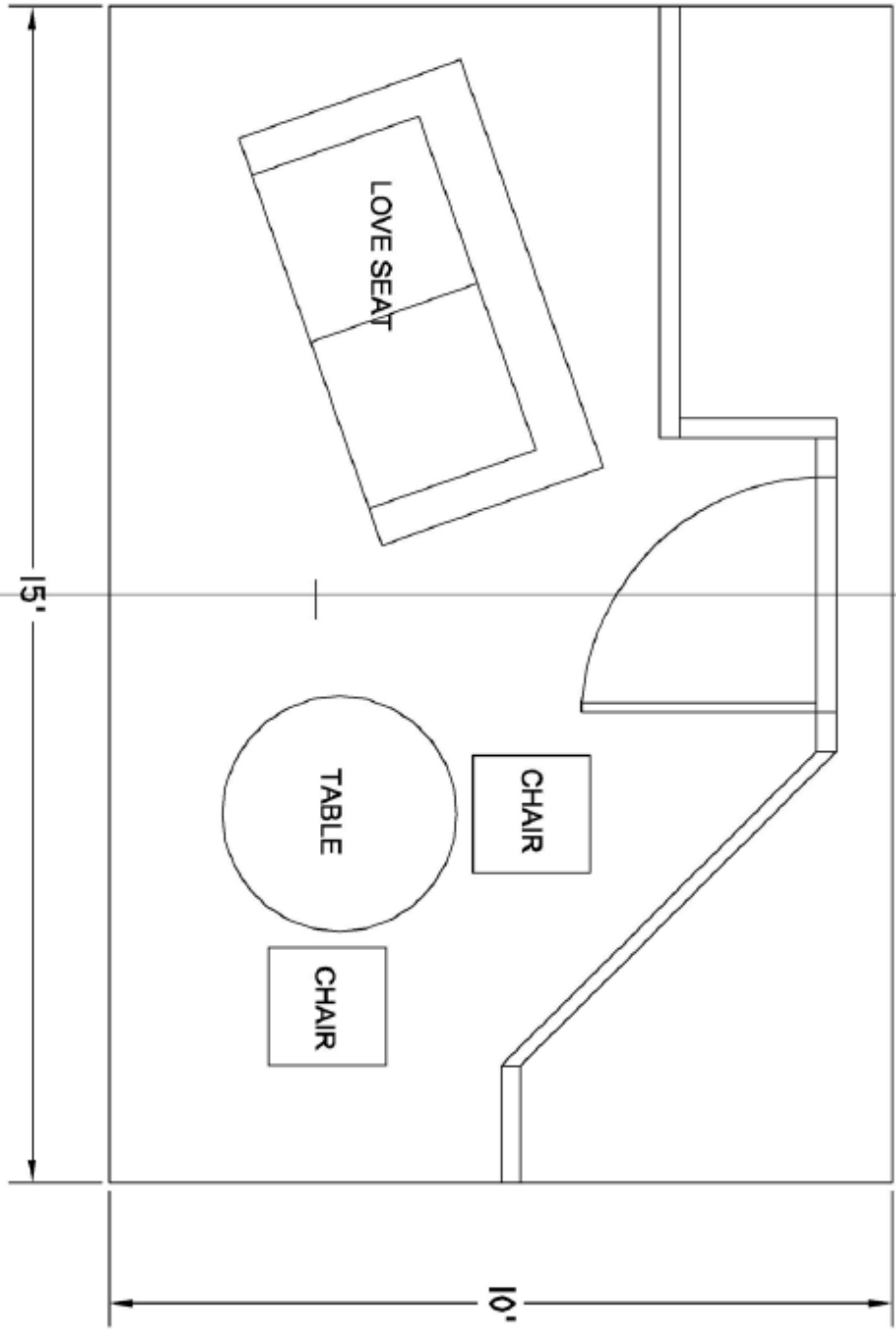
### **Recommended Sequence**

1. Have measurements ready
2. Leave start line
3. Grab tape and tape measures
4. Measure and tape each point
5. Tape out all lines (connect the dots)
6. Go back to start line and say "Done!"

**Penalties - Add the following time to a score if:**

Using the wrong type of tape	30 s.
Malformed corners (not meeting or overlapping)	5 s.
Inaccurate measurement within the scenic shape	15 s. per
Inaccurate placement of the scenic element within the stage space	15 s.
Inaccurate scale translation into the stage space	15 s.
Incomplete ground plan when contestant calls "complete"	10 s. per missing line
Disregard of rules – goes for the shortcut	25 s.



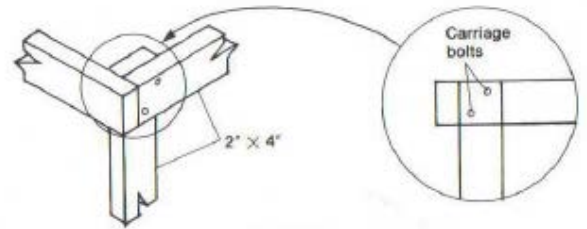


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<b>TECH CHALLENGE</b>		OF
<b>GROUND PLAN</b>		
VENUE:	UNL	
DESIGNER:	K. LOWRY	DRAFTER:
	K. LOWRY	
SCALE:	1/2"=1'-0"	DATE:

### LEG A PLATFORM (2-PERSON EVENT)

Small-sized platforms will be used. The leg holes are drilled slightly larger than the 3/8 inch bolts used to attach them to the platforms. Each team member must use two different wrenches from the wrenches provided. This adds to the challenge by requiring the participant to set the ratchet in forward/reverse mode, or get the adjustable set to the correct width.



At the start two legs are attached on the left and the two right side legs are not. Participants would attach the right legs, reverse the wrenches and remove the left legs, and return to the start/finish line leaving the platform half legged ready for the next two participants.

#### **Prop List**

- One small 2x4-framed platform with four 12" or 18" 2x4 legs
- Two legs should be in place bolted to the platform, two legs should be set on floor near start line.
- Two ratchet wrenches with 9/16" sockets
- Two adjustable wrenches (Crescent or "C" wrenches)
- Two 9/16" box end wrenches

#### **Recommended Sequence – generally a two-man event**

1. Leave the start line
2. Each member grabs one of the loose legs, one of each style wrench, and leg hardware.
3. Each member attaches one leg to the platform in an open or legless corner.
4. Then each member removes an existing leg from the platform.
5. Team returns to the finish line with loose legs and its hardware.

If two platforms are available, then this becomes a team event. The team must attach four legs to the one unlogged platform and set it on mark. Then the team removes the four legs from the second platform, leaving the two platforms ready for the next team. (1 platform set with 4 legs bolted and 1 with none.)

#### **Recommended Sequence – Two platforms**

1. Leave the start line
2. Grab legs, wrenches and hardware.
3. Each team member must attach at least one leg to the legless platform
4. When all four legs are attached, flip the platform over and set on mark.
5. Flip second platform over off mark to remove legs.
6. Use the same tools to remove the other legs.
7. Team returns to the finish line with loose legs and its hardware.

#### **Maximum Time Limit: 5 minutes**

#### **Penalties - Add the following time to a score if:**

Loose legs	10 s. each
Each team member must attach at least one leg	20 s
Not set in spike marks correctly – off spike	10 s.
Washer on both sides – one on outside and one on inside	5 s each leg
Disregard of rules – goes for the shortcut	25 s.

**“HOLLYWOOD” HARD-COVER WINDOW FLAT CONSTRUCTION**

(This is a “team” event and requires either 2 – 3 participants/competitors)

Using pre-cut materials, team members will have to assemble a “Mini” standard window flat using "Hollywood" style construction.

**Prop List**

- 2-3 pair of safety goggles
- 2 screw guns charged with spare batteries also charged
- Phillips head screw bits
- Measuring tape
- Square
- Each flat requires (precut before event):
  - 1 each 18” x 24” luan ply coverings
  - 2 each 18” rails
  - 2 each 22.x” flat stiles
  - 2 each 16.x” toggles
  - 2 each xx” window stiles



Allow enough of each for the number of teams that will be participating. (If 10 teams participate, then 10 pieces of luan, 20 rails, 20 stiles, 20 toggles, 20 small stiles plus some extra, just in case)

**CAUTION!** Screw drywall screws slowly and straight to avoid cracking the wood!

**Recommended sequence**

1. Leave the start line
2. Layout all pieces for the flat.
3. Measure plywood covering. Note that finished flat is 18” (Top and bottom) and 24” (sides)
4. Measure and label the Rail, Stile, and Toggles.
5. Assemble the outside frame first, checking for square corners.
6. Assemble inside window frame. Note guide marks for correct placement.
7. Attach inside window frame to the outside flat frame.
8. Attach 1/4” luan ply covering to the frame, squaring it as you go
9. Team returns to the finish line and one member says “DONE!”

**Maximum Time Limit: 8 minutes**

**Scoring**

Record the number of minutes/seconds to accomplish the above based on speed, accuracy and the final look. All pieces must be assembled and labeled correctly. Correct screws must be used to attach frame pieces together and to attach the luan covering. Participants must demonstrate correct and safe use of tools including wearing safety goggles during the driving of screws.

**Penalties - Add the following time to a score if:**

Frame is not square	5 s.
Pieces are not labeled correctly	2 s each
Incorrect screws are used for assembly of frame or covering	5 s.
Screws are sloppily installed or screwed in such a way as to crack the frame	1 s each screw
Not wearing safety goggles during driving of screws	25 s.
Disregard of rules – goes for the shortcut	25 s.



## **HANG A TRUSS (2-PERSON EVENT)**

Hang a Truss is a two-person event that is timed. The process is as follows: a two-member team starts behind the starting line. When they are given the “go” they must go to the truss sections, lay them out properly on the floor, bolt the sections together, attaché them to the manual chain hoists, and raise the truss to a height of 6’ off the floor (this means the bottom of the truss is at 6’). The timer will stop when the team members go back across the starting line.

### **Recommended Sequence – One platform**

1. Leave the start line
2. Each team member grabs a truss section.
3. Lay them out properly under hoists.
4. Bolt the truss together – bolts going same way, tight.
5. Then attach the spansets to the truss.
6. Secure the spansets with the shackle and attach to the hoist.
7. Raise the unit to 6’ height – maintaining level and watching fleet angle.
8. Team returns to the finish line and one member says “DONE!”

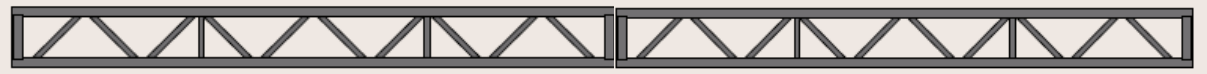
### **Penalties - Add the following time to a score if:**

Cross bracing of truss not lined up properly	10 s. each
Bolts not all going the same direction	5 s.
Bolts are not tight enough	5 s. per bolt
Span-sets not attached correctly	5 s. per set.
Fleet angle of hoist chains is noticeably skewed	5 s.
Truss not at correct height	1 s. per inch
Truss not level	5 s.
Judgment of teamwork	10 s.
Disregard of rules – goes for the shortcut	25 s.

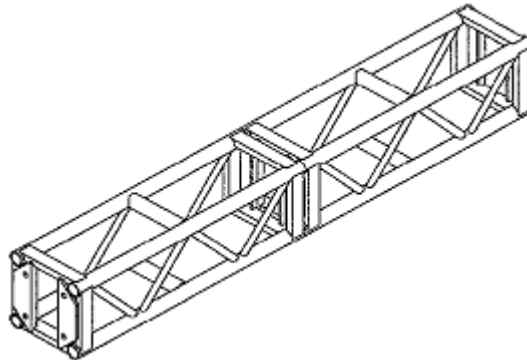
## Steps for putting together and rigging a lighting truss

1. Start by laying the truss out on the floor in the correct orientation (pictured below). Truss must run with the diagonals visible at the sides. Where sections are joined the diagonals "must form a continuous pattern." Never mix different makes or types of truss.

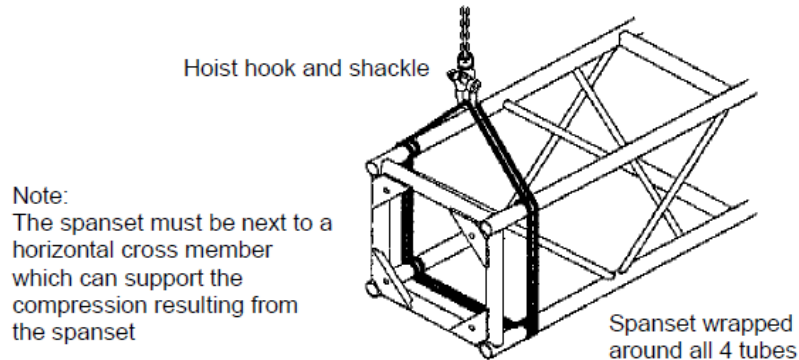
Correct way – side view



Wrong way



2. Bolt the truss together with all of the bolts going the same direction, from the same side. Repeat step as necessary, depending on how many sticks of truss need to be put together.
3. Once the truss is bolted together securely, attach the spansets to the truss (pictured below). It should be noted that the spansets should always attach first to the bottom of the truss and then to the top. The spanset should also come up on the outside of the rails.



4. Once the spansets are attached to the truss, secure them together using a shackle.
5. Now that the truss and spansets are all secure, attach the motor or chain hoist to the shackle holding the spansets together.
6. With the truss and spansets all attached to the hoists, raise the truss to an optimal working height to eventually hang whatever lighting, sound or video equipment on the truss. Be sure to raise the truss so that it is level.

**Spansets:** trade name for polyester round-sling. This is a loop of polyester tube enclosing a long bundle of continuous polyester filaments. Most today have a steel core of aircraft cable with a nylon spanset outer shell/cover. They are wrapped around the truss load, and they are able to provide a soft, strong support that can lift a truss without crushing the aluminum tubing.

**Shackles:** usually anchor shackles with screw in pins fitted to 1/2" cable. Used to connect most parts together. They should NEVER be tightened more than finger-tight.

## CABLE ROLL RELAY (TEAM EVENT)

In theatre it is important that when a show is struck, that all of the lighting cables are neatly stored on hooks or in neat piles. This event uses all of the team members in a relay style to disconnect and roll various lengths of power cable and store them in a neat manner. Each participant should use the **over-under method** of coiling.

Prior to the event, the cables will be connected together to form a 100' cable that is laying haphazardly on the floor. Four team participants shall be in single file at the starting line, when the start is given the first person proceeds to the first cable connection, and separates the cables, then they properly roll the separated cable and secure it, they then move the cable to its proper storage location and then go back to the starting line where they tag off to the next person in line to do the same thing they did. Once all the cables are rolled and the last person crosses the finish line the time is stopped and the rolled cables are judged for neatness and location.

### **Prop List**

Four 25' DMX or Mic cables, each with a tie-line or Velcro tie attached.  
Storage location – box, table, cable peg...

### **Recommended Sequence – One platform**

1. First person leaves the start line
2. Finds the loose (open) end, follows the cable to the first connection and separates the first cable.
3. They properly coil that cable and secure it with a tie line/Velcro tie.
4. Move the cable to the storage location and gets back to the starting line.
5. They tag the next person in line to do the same thing they did.
6. When last team member has crossed the line, time is stopped.

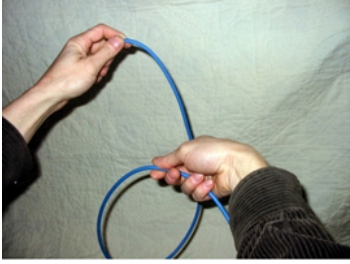
### **Penalties - Add the following time to a score if:**

Rolling cable over arm	10 s.
Messy and inconsistent size roll	10 s.
No kinked or looped-over coils	5 s.
Cable placed in wrong final location	5 s.
Judgment of teamwork	10 s.
Disregard of rules – goes for the shortcut	25 s.

### **Notes:**

All cables should have a tie line or Velcro tie attached at the male end of the cable.  
Cable pile should be approximately 10' from the start line.  
Storage location can be a box, a designated square on a table, a cable peg.  
Best check for proper coiling, throw the cable out and it should uncoil without kinks or knots.

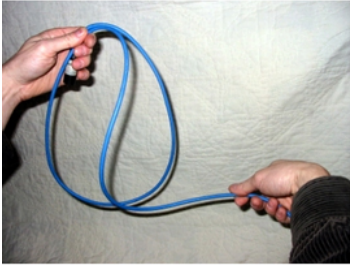
## Over Under Method of Coiling-Wrapping-Rolling up cable:



1. Start with the male XLR connector in your left hand and make a clockwise loop of the cable with your right hand.



2. Make a full circle and catch the cable in your left hand to complete the "over" loop.



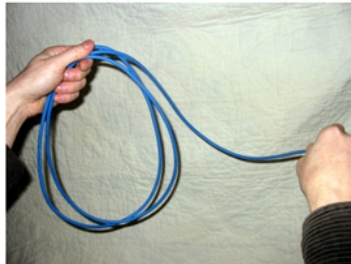
3. Now move your right hand out about 2 feet along the cable and start pushing back at your left hand a bit, twisting the cable counterclockwise in your right hand.



4. Bring this new loop under the front edge of the newly forming coil.



5. Catch this new loop with your left hand to complete the coil.



6. Start again with the over loop... then an under loop... then an over loop... Rinse, repeat...



7. Once you're finished with all of the loops, use a Velcro cable lock to keep it all from uncoiling.

Check out YouTube for many videos on how to over and under a cable.