

Tech Challenge

Tech Challenge consists of five events for individuals, pairs, and groups. These events represent basic skills that every technician needs. These events will take place on Friday of Thespian Festival 2021(see Festival program for specific time and location). A Tech Challenge team can have up to seven members. If a team is unable to finish all of the events during the allotted time, the team will not be eligible for Tech Challenge team awards (though individuals may still receive recognition for excellence in a particular event). Some team members may have to leave for Individual Events or other performances during this timeframe, so be strategic about completing Tech Challenge events earlier in the allotted time if possible.

These rules are based on the Tech Challenge rules at the International Thespian Festival. However, there have been several adjustments to improve the flow of the event, and due to time and location restrictions.

Possible Tech Challenge events are listed below, with the events for this year marked (*) with an asterisk (event selection subject to change).

1. ***Light Hang and Focus** (pp. 2-3)
2. ***Costume Quick Change** (pp. 4-5)
3. ***Knot Tying** (pp. 6-7)
4. Sew a Button (p. 8)
5. ***Prop Shift** (p. 9)
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Good Sportsmanship and Safety

All teams are required to show good sportsmanship which means being respectful and supportive of other teams. They are also required to act safely at all times during tech challenge. Unsafe or disrespectful behavior can result in time penalties or disqualification from the event.

Light Hang and Focus

Solo Event

Max time: 4 Minutes

Attempts: Two students from each team may try. Each can have up to two tries.

All equipment and tools will be provided, but participants can bring their own adjustable crescent wrench and gloves.

Equipment/Materials Required Per Station - Light Hang and Focus

- Light Stand
- Four ETC Source 4 ellipsoidal with three-prong Edison plug or pin connector (2 live, 2 cooling and being reset)
- Female pin connector to male Edison plug adapter as needed
- Safety cable attached to yoke of ellipsoidal
- Gel frame with pre-cut gel
- Adjustable crescent wrench with tether
- Extension cords as needed
- Masking tape
- Table
- Stopwatch

Rules - Light Hang and Focus

1. Participants must wear gloves on both hands at all times and use adjustable crescent wrenches. No speed wrenches or fingerless gloves. Participants may wear an apron, but it must not have an attachment around the neck.
2. Participants must tether their wrench when it is out and put it in a pocket when not in use. All wrenches brought must be attached to an 18" minimum tie line tether when in use. Items should never be tethered around a participant's neck or over the shoulder. Please note that items that fall from the apron or pockets will be counted the same as dropping an item.
3. Participants must not carry gel frames in a pocket or teeth. Gel frames may be placed on the ground, but may not be stepped on or kicked.
4. Participant must provide the sharpest possible focus of the fixture (blue/rainbow edge).
5. Follow the sequence and additional instructions below.

When the unit is secured properly to the pipe, powered on, and correctly focused to the shape marked out on the wall then the event has been successfully completed. The ETC Source 4 Ellipsoidal has a drop-in iris slot on the top of the fixture. The get clip should also be on this side of the fixture. The gel clip needs to be on top of the fixture when it is focused. Not all ellipsoidal fixtures have gel clips.

Required Sequence - Light Hang and Focus

1. Prior to start, put on gloves, pick up wrench
2. Leave the start line on the judge's call
3. Locate and hang fixture
4. Hand tighten C-clamp
5. Install safety cable and wrench tighten C-clamp (either can happen first)
6. Open shutters
7. Plug in fixture
8. Position fixture – Rotation and basic focus as necessary
9. Lock the fixture: tighten pan screw, yoke bolt, and rotation knob as necessary
10. Sharp focus as necessary
11. Shutter cuts to shape
12. Check orientation and focus
13. Drop in gel frame and secure gel safety clip
14. Back to Finish line (time is called when you cross the finish line.)

Penalties - Light Hang and Focus

Placing any item in mouth	10 seconds
Dropping items or placing on the ground	10 seconds
Gloves not worn beginning to completion	10 seconds
Items tethered around neck	10 seconds
Wrench not tethered	10 seconds
Gel frame not installed properly or forgotten	10 seconds
C-clamp opening not facing installer	5 seconds
Instrument hung upside down	15 seconds
Safety cable not used properly	10 seconds
Any item not tightened	10 seconds
Shutters not open prior to power	5 seconds
Shutter cut inside or outside 2" tape lines	5 seconds each
Failure to follow the sequence	10 seconds
Focus is not sharp	5 seconds
Blatant disregard for the rules/Unsafe behavior	disqualified

Costume Quick Change

Three-Person Event

Maximum time: 5 minutes

Attempts: One trio of students per team. Each team may try once due to time restrictions.

In this challenge, two people must use the wardrobe master's quick-change plot to successfully complete the costume quick change. This quick change will only involve changing items on the top half of the body (shirts, ties, hats, etc.)

The wardrobe crew will have up to 20 seconds for prep before the actor is released from the start box. The actor will enter even if wardrobe crew is not ready.

Equipment/Materials Required per Station - Costume Quick Change

- Two (2) costumes (designed to be one size fits all) including accessories
- Table for accessories
- Costume rack
- Hangers
- Tape (for marking table accessory layout and start box)
- Stopwatch

Rules - Costume Quick Change

1. Participants must properly snap, hook, and lace all clothing items.
2. Participants must dress the actor in all appropriate accessories.
3. Participants must be polite and professional, and treat actor with respect at all times.
4. Participants must hang up all costume items properly.
5. Participants must not drop hangers or other items.
6. Follow the sequence and additional instructions below.

Required Sequence - Costume Quick Change

1. Time begins when wardrobe crew leaves the start box and begins prepping. Standard conventions like “puddling of costumes”* and “reverse dressing”** are acceptable quick change techniques.
*Puddling costumes refers to the placing of pants and shoes on the floor so an actor can step into them quickly.
**Reverse dressing occurs when a dresser turns a shirt inside out, places his or her arms in sleeves, grabs the hands of the actor, and pulls the costume over the actor’s head and onto his or her arms at the same time.
2. After 20 seconds, the actor is released from the start box to the quick change box. The actor will be fully dressed in the Scene 1 outfit.
3. Wardrobe crew to assist the actor out of the Scene 1 outfit: undo fastening, help lift costume over the head or off the arms. Note: The actor can help unbuttoning, stepping out, removing shoes, etc. but only if the wardrobe crew requests.
4. Assist the actor into Scene 2 outfit: do fastenings completely and put on hats or accessories.
5. Once set, the wardrobe crew returns to the start box with all Scene 1 costume pieces in hand. (Note: Costumes do not have to be rehung to end the event.)
After the event is over, the team will assist in hanging up all the costumes on the rack.

Penalties - Costume Quick Change

Items not properly placed on actors	5 seconds per item
Missing accessories or clothing pieces	15 seconds each
Unnecessary roughness of the actor (pulling too hard)	5 seconds
Rude treatment to actor	15 seconds
Blatant disregard for the rules/unsafe behavior	disqualified

Knot Tying -

Solo Event

Maximum time: 2 minutes

Attempts: Anyone on the team may try, and each gets up to two tries (if time permits).

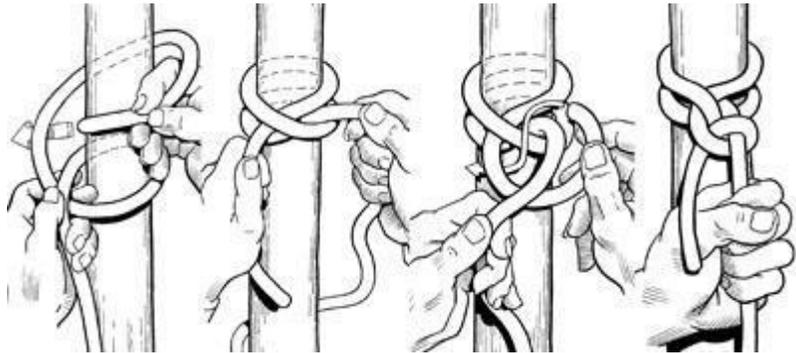
Equipment/Materials Required per Station - Knot Tying

- 2 medium weight ropes, approximately 4'-6' in length
- Pipe stand
- Bucket (optional for bowline)
- Stopwatch

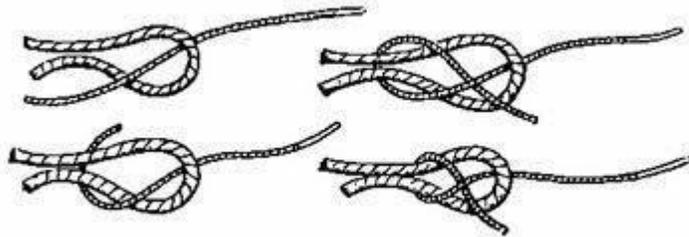
Required Sequence - Knot Tying

1. Leave the start line
2. Tie a clove hitch on the pipe stand
3. Tie a half hitch (a locking knot) on the clove
4. Tie a second line to the first with a sheet bend (a tailor's knot). Participants must put the tails for the sheet bend on the same side.
5. Tie a bowline. Participants must put the tail for the bowline on the inside of the loop.
6. Contestant signals with hands up.

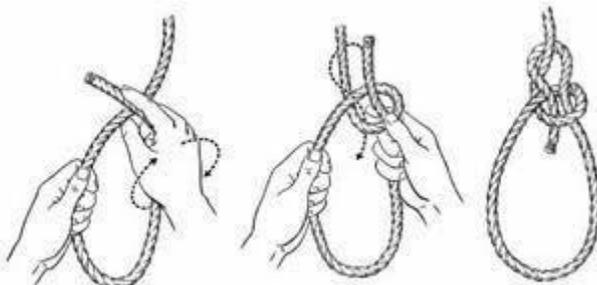
Clove Hitch with Half Hitch



Sheet Bend



Bowline





Clove Hitch



Sheet Bend



Bowline

Penalties - Knot Tying

Placing rope in the mouth	5 seconds
Failed knots or incorrectly tied knots (for each knot)	2 seconds each
Not having a minimum of 6" tails on all knot ends	2 seconds
Outside bowline: Tail on outside of the loop	2 seconds
Sheet bend: Tails on opposite sides	2 seconds
Failure to follow the sequence	5 seconds
Knots not pulled tightly (correctly tied but left loose)	2 seconds
Blatant disregard for the rules/unsafe behavior	disqualified

Sew a Button

Solo Event

Maximum time: 3 Minutes

Attempts: Two students per team may try, and each gets two tries, if time permits.

In this challenge, participants must sew a shank button on the material provided. The needle will be threaded, but not knotted. Participants will be given a shank button, the threaded needle and scissors.

Rules and Required Sequence - Sew a Button

1. Pick up the needle and knot the thread.
2. Place the needle into the fabric, starting at the back side of the garment, bringing it through the front.
3. Make two or three stitches in the fabric to anchor the thread.
4. Bring the needle up to the top of the garment and bring the thread through the button shank and back through the fabric.
5. Pull the stitch semi-tight. The shank should still stand up over the fabric. Do not pull the threads tight enough to sink the shank into the fabric.
6. Sew through the cloth and wrap the thread under the shank four times. Then sew back through the cloth.
7. Create a loop of thread on one side of the threads and bring the needle around through the loop. Pull the threads tight. Make at least three blanket stitches around the threads that are holding on the shank button.
8. Bring the needle to the back of the fabric then knot off the thread.
9. Cut the thread.

Penalties - Sew a Button

Each loop under the four required on button hole	10 seconds
Each wrap under the four required around the thread	10 seconds
Knot missing at beginning/end	15 seconds
Button pulls away from fabric, loose	15 seconds
Button pulls off	25 seconds
Loose thread on wrap (around thread)	10 seconds
Wrap done on button shank instead of around thread	10 seconds
Puckered fabric	10 seconds
Failure to follow the sequence	5 seconds
Blatant disregard for the rules/Unsafe behavior	disqualified

Prop Shift

Pair Event

Maximum Time: 3 Minutes

Attempts: One pair of students per team, and each team gets two tries.

In this challenge, each team will have to change the set quickly and efficiently. The onstage table should be set for Act I. The off-stage prop table will have places for both the Act I props and the Act II props, which will have to be moved onstage during the event.

Equipment/Materials Required per Station - Prop Shift

- Two (2) sets of props (e.g., tablecloth, utensils, napkin, plates, vase with flower)
- Props table (offstage table)
- Dining table or similar (onstage table) with a tablecloth having markings for the first setting and spike marks on the tabletop for the second setting
- Tape (for marking the table material layout and start box)
- Stopwatch

Rules - Prop Shift

1. Participants must not drop props or place them in pockets.
2. Participants must move quietly and efficiently.
3. Participants must not handle props roughly or carelessly.
4. Participants must place tablecloth straight with no corners flipped and in the proper orientation, US/DS.
5. Participants must place items correctly and right side up.
6. Follow the sequence and additional instructions below.

Required Sequence

1. Leave the start line.
2. Clear the on-stage table – all items including the tablecloth.
3. Place props on the pre-set marks on the off-stage prop table.
4. The Act II tablecloth should be taken from the off-stage prop table and set on the on-stage table.
5. The Act II props should be taken from the off-stage prop table and moved to the correct marks on the cloth covering the on-stage table.
6. Once set, the contestants run to the finish line, when timing will cease.

Penalties - Prop Shift

Carelessly handled prop	5 seconds per instance
Setting props in the wrong position (missing the spike)	5 seconds per instance
Blatant disregard for the rules/Unsafe behavior	disqualified

Leg a Platform -

Pair Event

Maximum Time: 5 Minutes

Attempts: One pair of students per team, and each pair gets two tries.

In this challenge, the team must attach four legs and remove four legs, leaving the platforms ready for the next team. Two ratchets and two wrenches are provided to attach and remove the bolts from the legs.

Equipment/Materials Required Per Station - Leg a Platform

- 2 small identical platforms
- Six identical 2x4 legs, pre-drilled for 3/8" bolts
- 3/8" carriage bolts (2 bolts per leg plus extras)
- Washers (1 washer per bolt plus extras)
- 3/8" Nuts (1 Nut per bolt plus extras)
- 2 Ratchets with sockets for 3/8" nuts
- Table
- Stopwatch

Rules and Required Sequence - Leg a Platform

1. Leave the start line
2. Each team flips the legged platform over safely.
3. Each person removes ONE leg from the legged platform (2 legs total).
4. The contestants then attach the legs to the other platform. Hardware sequence from outside to inside of platform should be: bolt, wood frame of platform, 2x4 leg, washer, nut.
5. When the pair has legged the new platform, they safely flip it, placing it on its marks.
6. Team returns to the finish line.
7. After the event, assist the judge in resetting all equipment

Penalties - Leg a platform

Loose Legs:	
Small Wiggle	5 seconds
Medium Wiggle	10 seconds
Very loose leg	15 seconds
Placing any items in mouth	10 seconds
Not all team members attached at least one leg	20 seconds
Not set in spike marks correctly – off spike	10 seconds
Inaccurate hardware sequence	10 seconds per sequence
Blatant disregard for the rules/Unsafe behavior	disqualified

Fold a Drop -

Four-Person Event

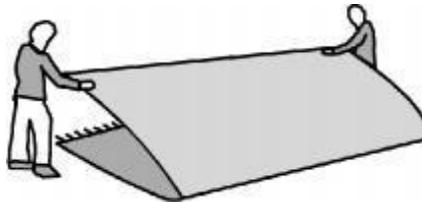
Maximum Time: 2 Minutes

Attempts: One group of four students per team, and each group may try twice.

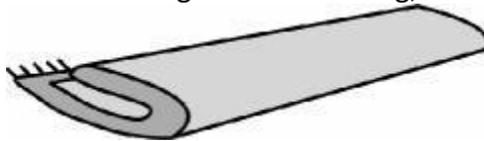
When not hung on a batten for shows use, there are particular ways soft goods should be folded and stored. There are many ways to fold a drop, and it is useful for technicians to be aware of the various methods. The method described below is how the drop should be folded at Tech Challenge.

Rules and Required Sequence - Fold a Drop

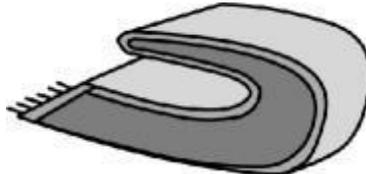
1. Leave the start line.
2. Make the first fold. The team must fold the pipe pocket (lower corners) to the webbing (upper corners).



3. Fold again from lower folded edge to the webbing, smoothing wrinkles.



4. Continue folding until width is approximately three feet, smoothing wrinkles and creases.



5. Fold left/right edges in toward center. Leave space for the final book fold approximately 1' to 16" in the center.



6. Repeat until the backdrop can be folded into a square of two to three feet.



7. Fold the two halves of the drop back on themselves, creating a book-like shape with one open end.
8. Carry the folded drop and place it on the sizing template.
9. Team returns to the finish line.

Penalties - Fold a Drop

Folded off center	5 seconds
Messy folds or pleats	5 seconds
Does not fit into the sizing area	10 seconds
Uses a substantially different folding pattern than described	10 seconds
Blatant disregard for the rules/Unsafe behavior	disqualified

Cable Roll-Up Relay

Team Event

Max time: 5 Minutes

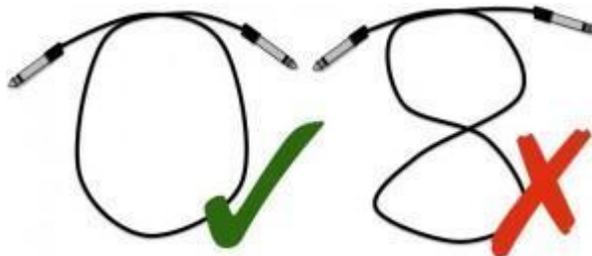
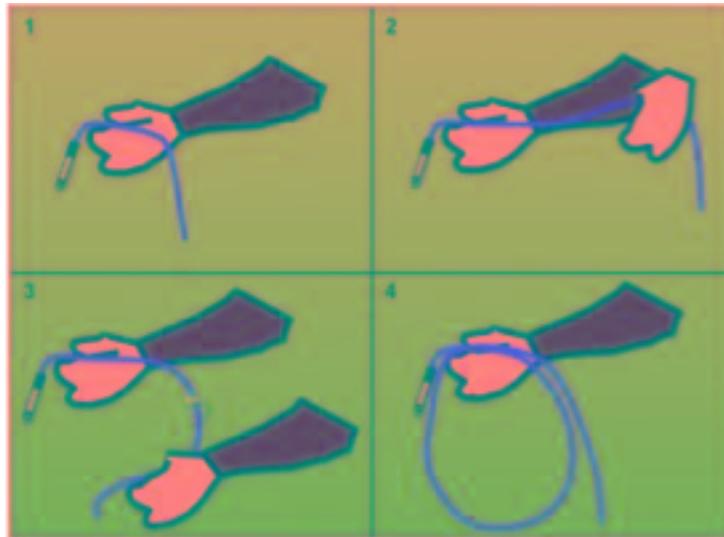
Attempts: 4 -6 members of the team participate. Each team may have two attempts, if time permits.

If a team only has four or five members, some participants will need to go twice. All members of the cable rollup team must participate before a member goes to coil a second cable. Participants must be behind the starting line before they begin.

Equipment/Materials Required per Station - Cable Roll-Up Relay

- 6 Extension Cords (or whatever lengths are available)
 - 2 10' Cords
 - 2 15' Cord
 - 2 25' Cord
- Each cord should have a piece of tieline tied onto it at the female end.
- Table for "storage" of cords
- Masking tape for labeling storage areas on table
- Stopwatch

For this challenge, all six cables will be in one connected loop, comprised of cables in the lengths of 10'-15'-25'-10'-15'-25'.



Rules and required sequence

The Relay: When the judge says start, the first participant will proceed to the first cable connection point. They will disconnect the cable, roll up the cable properly using the 'over/under' technique described below, secure it with tieline, and place it in the designated storage spot. Then the participant will tag the next participant to begin and proceed back to the starting box. This procedure continues until the last cable is rolled and stored and the last participant is in the starting box. Judging is based on neatness, size of coil and proper location.

Over/Under Coiling Technique

1. Hold one end of the cable in your receiving hand and grab another part about 2 feet farther down the cable.
2. Make the first coil normally, by bringing your hands straight together and accumulating that coil in your holding hand. Rotating both wrists slightly counterclockwise will help the cable bend the right direction. Let the cable spin in your hands to form a nice round first loop.
3. Grab another piece 2 feet away, but as you bring this one in, rotate your wrist clockwise to invert the loop as it forms. It often helps to also roll the cable slightly between your thumb and fingers, to better guide it into flopping the right way. If the loop starts to twist funny or tries to figure-eight on you as it forms, twisting the cable in your fingers helps to flatten out the loop.
4. Add this inverted loop to your bundle. The part that heads for the floor should pass UNDER the loop you're just making. That is the key. This is your first "flipped" loop. It may look and feel a little wonky, but this is exactly what you want.
5. Now, if you look carefully at the rest of this particular cable going toward the floor, you may be able to tell that its twist will lend itself to coming up in a "normal" non-flipped loop. So reach for that next bit and make another straight-in loop.
6. Next comes another flipped loop. Grab the next part and rotate your wrist to invert the coil underneath and add it to the bundle.
7. Next comes a normal straight-in loop and then an under loop, etc. Just keep going that way — over, under, over, under — until the cable is finished.

Penalties - Cable Roll-Up Relay

Rolling Cable over arm	15 seconds per instance
Messy and inconsistent size roll	10 seconds per instance
Cables not secured properly	5 seconds per instance
Failure to follow the sequence	5 seconds
Blatant disregard for the rules/Unsafe behavior	disqualified

Thread a Sewing Machine -

Solo Event

Maximum time: 2 minutes

Attempts: Two students per team may try this event, and each student gets two tries.

Each participant will insert a wound bobbin into the bobbin housing of a sewing machine and then properly thread the machine to pull the bobbin thread up through the stitch plate.

Equipment/Materials Required per Station - Thread a Sewing Machine

- Sewing machine* with needle in place
 - Bobbins wound with thread
 - Spools of thread
 - Scissors
 - Stopwatch
- * The sewing machines used will all be identical.

Preset for Event

- Wound (filled) bobbin, spool of thread, and scissors should be placed on the table to the right of the machine.
- Bobbin housing cover should be in place on the machine.
- Thread spindle cap should be in place on the machine.

Required Sequence - Thread a Sewing Machine

1. Leave the starting line.
2. Remove bobbin housing cover.
3. Insert the bobbin into the bobbin housing with thread unwinding counter-clockwise.
4. Remove thread spool cap and place thread on spindle.
5. Replace thread cap and thread the machine following the thread guide on the machine.
6. Thread needle.
7. Turn flywheel and pull bobbin thread up through the sewing plate on the machine.
8. Pull thread under the pressure foot to the back of the machine.
9. Replace bobbin housing cover.
10. Return to starting line to stop time.

Penalties - Thread a Sewing Machine

Careless handling of equipment	5 seconds
Incorrect threading sequence	5 seconds
Incorrect insertion of bobbin into housing	5 seconds
Blatant disregard for the rules/Unsafe behavior	disqualified

Sound System Setup

Solo Event

Maximum Time: 5 Minutes

Attempts: One person per team, and they get one attempt due to time restrictions.

In this challenge individuals will hook up a basic audio system according to the sound designer's hook-up chart. This basic sound system will include a mixing console, amplifier (amp), speakers, microphone, and a playback device for sound effects and music. In this challenge participants must hook up the equipment in the correct manner, power on the system, and create sound using the two devices (microphone and playback device.) Remember if things are turned on when the amps are on, it can cause a power spike and damage speakers. Make sure the amps are on last. Maximum time allotted for this event is five minutes.

Rules and Required Sequence - Sound System Setup

1. Leave the start line
2. Set up the mixing board and amp (or a powered mixer)
3. Patch playback device (CD, iPod, etc.) into mixer stereo inputs
4. Patch mic (SM-58 or similar) into mixer input 1
5. Patch Mixer output L into amp Channel 1 input
6. Patch Mixer output R into amp Channel 2 input
7. Connect amp output 1 to Left Loudspeaker
8. Connect amp output 2 to Right Loudspeaker
9. Power playback device, mixer, then amp
10. Send playback device to speakers
11. Test playback device
12. Send microphone to speakers
13. Test microphone
14. Participant runs to finish line, when time stops.

Penalties - Sound System Setup

Something does not work – speaker, CD, Mic	10 seconds each item
Cables not in the correct input/output	5 seconds each cable
Feedback	5 seconds
Any cable not connected	5 seconds each
System powered up in wrong order	10 seconds
Audio level too loud or too soft	5 seconds
Sound not produced in both the main speakers	5 seconds
Failure to follow the sequence	5 seconds
Blatant disregard for the rules	disqualified

Tape a Floor Plan

Team Event

Maximum time: 15 Minutes

Attempts: Each team may try only once.

Required Sequence - Tape a Floor Plan

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

The diagrams on the following pages will help you learn how to read a scale rule and tape out a set.

Penalties - Tape a Floor Plan

Malformed corners (not meeting or overlapping)	5 seconds
Inaccurate measurements within the scenic shape	15 seconds per angle
Inaccurate placement of the scenic shape within the stage space	15 seconds
Inaccurate scale translation into the stage space	15 seconds
Incomplete ground plan when contestant calls "complete"	10 seconds per missing line
Blatant disregard for the rules	2 minutes

Use these diagrams to practice and prepare for this challenge.

