



**TEECA
Southwest
Regional**

&

**International STEM Education
Conference
Branson, Missouri**

12-14 October, 2014



TEECA
SOUTHWEST REGIONAL
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COMPETITIVE EVENTS SCHEDULE

ISEA-STEM Conference, Branson, MO

October 12-14, 2014

<u>EVENT</u>	<u>LOCATION/TIME</u>	<u>DESCRIPTION</u>
TEECA Welcome	Compton Ferry 12 Oct 14 12:30-1:00pm	Students from other chapters are welcomed to the event. Contest materials are handed out at that time for specific competitions. Facilitator: Mike Neden
Teaching Lesson Contest	Compton Ferry 12 Oct 14 1:00-2:00pm	The Teaching Lesson Contest allows an individual or pair of students to teach others about a technological topic. The topic is provided well in advance of the TEECA competition. All preparation for the actual lesson must be done by the student and /or team. The scoring is based on teaching / learning effectiveness, organization, information presented, use of media, and handouts. The purpose of the TEECA. (No Limit on 1-2 Person Teams) Facilitator: Vinson Carter Judges: _____ & _____
“Live” Manufacturing Contest	Bee Creek 12 Oct 14 2:00-3:00pm	The TEECA live manufacturing contest encourages and rewards the study of production technology. The teams must design, document, fabricate, and implement a continuous manufacturing system to produce an assigned product. (Limit One 6-person Team Per School) Facilitator: Vinson Carter Judges: _____ & _____
Technology Challenge	Compton Ferry 12 Oct 14 4:30-5:30pm	Technology Challenge Contest is to provide a means for TEECA members to demonstrate their knowledge about the core concepts of technology and the profession of technology education. . (Limit Two 4-person Teams Per School) Facilitator: John Iley Judges: _____ & _____
TEECA Lightning STEM Displays	Exhibit Hall 13 Oct 14 9:00am-4:00pm	The TEECA Lightning STEM Sessions are designed to showcase student work through a visual display. The displays must be contained within a 6’x10’ area. Conference participants will vote to determine the display which provides the best presentation/learning experience as it relates to STEM education.
“Live” Robotics Competition	Exhibit Hall 13 Oct 14 9:00-10:20am	The TEECA Robotics Challenge is to test a student organization’s ability to program an autonomous robot and remotely control a robot to perform specific functions. (Limit Two 4-person Teams Per School) Facilitator: Vinson Carter Judges: _____ & _____
Land Transportation Challenge “The Amazing Race”	Cooper Creek 2 13 Oct 14 10:30-11:20am	Each team will participate in ISEA’s “The Amazing Race” and travel around the world solving challenges along the way. The first to successfully navigate around the world wins the competition. (Limit Two 4-person Teams Per School) Facilitator: Mike Neden



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TEECA “Rockport USA” Flight Challenge	Taneycomo 13 Oct 14 1:00-1:30pm 4:20-5:30pm	TEECA members can test their piloting skills in the 10’x14’x55’ long Rockport flight arena. The fastest to complete the Rockport challenge course wins the title of “Top Gun 2014”. Participants can sign up for any time during the event times. (Limit Four 1-Person Teams Per School) Facilitator: Mike Neden & Andy Klenke
Problem Solving Contest	Short Creek 3 13 Oct 14 1:30-2:50pm	The competing TEECA affiliated teams will bring tools, receive contest details and materials on-site necessary to develop a solution to a specific problem. (Limit One 4-person Team Per School) Facilitator: Andy Klenke Judges: _____ & _____
On-Site Production Challenge	Short Creek 3 13 Oct 14 3:00-4:20pm	The TEECA Assembly Line Production is an on-site timed event which assesses a team’s ability to identify the most efficient way to assemble a product using a fixed assembly line facility. No tools or pre-production processes are necessary for this event. (Limit One 6-person Team Per School) Facilitator: Andy Klenke Judges: _____ & _____
“Live” Communication Submission	ISEA Registration Booth 13 Oct 14 5:00pm	The competing teams will receive a description of a product, service, or organization plus essential marketing or demographic information . . . then produce a video commercial or feature. The teams must develop a storyboard and produce the required feature within the time constraints of the contest. (Limit Two 2-7 person Teams Per School) Facilitator: Andy Klenke Judges: _____ & _____
“Live” Photography Competition Submission	Exhibit Hall 13 Oct 14 5:00pm	TEECA participants can enter into the photography challenge and display the pictures in a display for all to see. (Limit Four 1-Person Teams Per School) Facilitator: Eric Denault Judges: _____ & _____
TEECA Awards Ceremony	Taneycomo Ballroom 1 14 Oct 14 12:00-2:00pm	Competition winners are announced and awarded in conjunction with the ISEA Luncheon. Facilitator: Andy Klenke



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LIVE COMMUNICATIONS

DESCRIPTION:

The communication contest is designed for teams of college students from TEECA affiliated chapters. The objective of the contest is to produce an industry quality video-based commercial and product advertising the “assigned topic.” The “assigned topic” will be a product, service, or organization. The competing teams will receive a description of the product, service, or organization, and associated marketing and demographic information. However, the bulk of the information needed for the video-based commercial will be up to the team to research. The teams must develop a storyboard and produce the required feature within the time constraints of the contest.

Theme

What should a STEM classroom look like?

Challenge

Create a 60 second infomercial highlighting and documenting the facility requirements for teaching STEM education.

TEAM:

Each team will consist of three to six students who are members in good standing of a TEECA affiliated chapter, and who are registered participants at the conference. The members may be either full-time undergraduate or graduate students (note: maximum two graduate students per team).

PROCEDURES:

1. Teams are encouraged to interact with vendors scheduled to be at the FSRTC and begin their pre-production work. Define the problem, the vendor, the intended audience and any other research needed.
2. Fill out the required Preproduction Analysis template.
3. At the TEECA Welcome session, each team must check in, the storyboard is due to the event organizer by noon that same day.
4. Focus your infomercial as a 60 second advertising piece to specifically address integrated STEM education.
5. The video must be exactly 60 seconds long – no credits, no lead-ins, no extra b-roll footage (as this will be a commercial on prime-time, and TV ad space is expensive).
6. The video may include video, audio, photos, and text.
7. Turn in a completed video as a MP4 - no other formats will be accepted. The video.MP4 should be on a DVD as a file or on a flash drive, not as a VideoTS file (we don't want to have to rip the DVD to aggregate each of the entries).
8. The final video must be submitted in the correct format by 5:00pm on Monday to the designated drop location.

Criteria and Constraints

- Only members of the communication team may work on any part of the project (i.e., pre-production, production, and or post-production).
- Each team must work with equipment they have transported to the competition. No “permanent” video production facilities will be provided at the site, nor may any local (off-site) facilities be used.
- The storyboard forms are important planning tools. The completed infomercial should not differ significantly from the plan laid out in the preliminary storyboard. Slightly revised (or “polished”) final storyboard forms may be submitted along with the completed video, but are not necessary unless significant deviation occurred.
- Pre-recorded audio (music, SFX, etc.) may be used, but no pre-recorded video may be incorporated into the infomercial. Note: If pre-recorded audio is used, teams are encouraged to use copyright-free audio. Any audio may be generated with computers, midi devices, etc. If royalty-free music is used, a copy of the school's license with the music producer must be attached. Failure to do so will result in a rule violation.
- Any part of the package turned in late will be penalized up to 5 points for anything over 30 minutes of elapsed time beyond the deadline.



- Any person's face used significantly in the infomercial (i.e.; interviewed) should have a signed talent release. Due to time constraints and the limited use of this PSA by TEECA, it is not necessary to obtain parent signatures for individuals under the age of 18.
- Consult the on-site director or head-judge if you have any other questions or concerns.

Materials:

The individual teams must provide the following:

- Transportation
- Video camera and support
- Sketching/illustration tools (pencils, etc.)
- Video editing and poster illustration software

The following is to be provided by the contest organizers:

- The "Challenge"
- Pre-production analysis form
- Storyboard template
- Talent release forms

JUDGING CRITERIA:

Each team's preproduction paperwork, poster and PSA will be judged by at least two professors and or industry experience professionals who have experience in advertising, marketing, and or TV/Video related experience, and/or administrators. The judging criteria will be based on two distinct sections: pre-production planning, the and :60 PSA. These two sections will be judged using the rubrics below.



Communication Judging Rubric

This section is worth 100 points.

Criteria	Exemplary 10-9 pts	Acceptable 8 pts	Emergent 7 pts	Novice 6-0 pts	Score
Problem Analysis	A detailed analysis of the problem is provided. Context matches the infomercial.	A problem analysis is provided that matches the infomercial.	A weak or underdeveloped problem analysis is provided.	No problem analysis or the problem presented.	
Audience Analysis	Rich details are given about audience demographics & psychographics.	Audience demographics and psychographics are provided but not fully developed.	Audience information is given but missing key components.	No or incorrect Audience information is provided.	
Performance Objective(s)	More than one fully Developed performance objective is provided.	A fully developed Performance bjective is provided.	An objective is given but is missing either the content, context or criterion level.	No or a poorly developed performance objective is given.	
Script	Detailed and logical shot sequencing, transitions, audio and graphics included. Uses script format.	Includes scene numbers, video and audio descriptions. Story sequence is logical.	Script is somewhat illogical and does not adequately describe the storyline.	Incomplete script provided.	
Storyboard	Detailed and logical shot sequencing, transitions, audio and graphics included.	Includes scene numbers, video and audio descriptions. Story sequence is logical.	Thumbnail sketches are illogical and do not adequately describe the storyline.	No storyboards submitted or random sketches submitted.	
Production Camerawork	Steady and creative shots that enhance video. Great use of close-ups.	Clearly focused and framed with limited zooms.	Steady, but framing amateurish. Too many long wide shots & too few close-ups.	Serious problems with focus, steadiness and framing.	
Production Audio	Same as <i>Acceptable</i> Level and includes room tone & sound effects recorded in field.	Correct microphones chosen, clear audio recorded with good levels.	Poor quality audio recorded from poor choice of microphones or sound recording technique.	No original audio recorded.	
Production Lighting	Excellent & creative use of lighting to propel story emotionally.	Lighting is good. Interviewees are clear and visible	Adequate lighting on subjects, some video noise in blacks. Some harsh lighting leading to squinted eyes by interviewees.	Poor ambient lighting choices: heavy back-lighting.	
Post Production Continuity and Pacing	Shots logically pace the story along in interesting way. Excellent use of transitions.	Pace and timing good. Clips move along, telling the story. Moderate use of transitions.	Shots are in adequate sequence, some attempts to make edit interesting. Transitions look gimmicky.	Shot sequencing is incomprehensible. Shots are left way too long. Edit points glitch.	
Post Production Use of Media	All media work seamlessly to propel story. Clearly demonstrates understanding and application of media in videos.	Good use of music, titles and graphics.	Music does not fit video, standalone title taped with camcorder.	No use of titles, graphics or music.	



Communication Judging Form

TEECA School _____

TEECA Team Members

Vendor _____

CRITERIA	MAX PTS	SCORE
Problem Analysis	10	
Audience Analysis	10	
Performance Objective(s)	10	
Script	10	
Storyboard	10	
Production Camerawork	10	
Production Audio	10	
Production Lighting	10	
Post Production Continuuity and Pacing	10	
Post Production Use of Media	10	
TOTAL		

Feedback: _____



SOUTHWEST REGIONAL

TEECA Talent Release

I hereby give permission to the International Technology and Engineering Educators Association (ITEEA) and the Technology Education Collegiate Association (TEECA) to publish my image and /or voice for the purpose of making a video for the purpose of the 2012 Southwest Regional TEECA Communication Contest. I understand that the finished video cannot guarantee that my voice or image will be included, and that the finished video may be used outside of the video competition for promotional purposes of TEECA.

Name: _____

Address: _____

City/St/ZIP: _____

School: _____

Signature: _____

Dated: _____

IF 18 or under, signature of parent/guardian is required.

Parent or Guardian Printed Name _____

Signature: _____

Dated: _____



Communication Challenge Preproduction Analysis

TEECA School _____ Running Time: _____

TEECA Team Members

Step 1: Describe the problem is this video trying to solve?

Step 2: Who is the intended audience? Describe by their demographics and psychographics.

Step 3: What are the performance objectives of the video?
How will these be measured as being successful?

Step 4: What resources will you use for doing research?

Step 5: Use the supplied storyboard format or Celtx software to match your script scenes/shots for a :60 second video

Step 6: Turn in this completed pre-production package with your poster rough layout by the assigned time given at the regional.



STORYBOARD

Project title: _____

Producer: _____

Screen Title: _____

Date: _____

Sequence _____ of _____

Graphics Notes:

Audio Text:

Scene Sketch



Type of Shot: ECU CU MS WS EN PL/R ZI/O CA OS CA CI POV

Graphics Overlay:

Audio Type(s): LIVE VOICE OVER MUSIC SOUND EFFECT

Video Length: MIN _____ SEC _____ FRAMES _____

Special Effects:

Transition In:

Transition Out:

Shot-Screen Description/Notes:



Overview of Storyboard Sheet

1. Project Title: What assignment is this for, or is it a special project.
2. Producer: Your name if you are directing the video
3. Screen Title: What are you calling this scene.
4. Date: The date this storyboard scene was completed
5. Sequence: Fill this in last after you have determined the order of the shots. If you later decide to change the order, just cross out the old number and record a new number. The order will be important for the editing team so that they know exactly which shots follow each other. With the sequence number identified, you can rearrange the order of each storyboard card to allow you to plan how to efficiently capture your footage during the production stage.
6. Graphics Notes: This can be sketched or described. Can include text overlays, etc.
7. Audio Text: What do you want the actors saying? This will go into the teleprompter.
8. Scene Sketch: This area is for drawing the image that the camera operator should try to capture during shooting. The sketch is very important because it shows an example of the shot composition that is desired. The shot selection might call for a "medium" shot, but since people have different standards for shot compositions, the sketch is the only way to see what type of shot is expected.
9. Shot-Scene Description: This will contain a description of what the director will be instructing the camera operator to capture on tape. This will help to explain details that cannot be shown by a single sketch. You might decide to use some of the terms used to identify the basic camera shots, such as, extreme close up, medium shot, or long shot in conjunction with your descriptions. If these camera shot terms are new to you.
10. Type of Shot:
 - a. Extreme Close Up (ECU): a shot composition that shows the fine details of a subject. An extreme close-up shot is relative to what is considered a close-up shot.
 - b. Close Up (CU): a shot composition that captures only a small portion of a subject. A close-up shot is relative to what is considered a medium shot and an extreme close-up shot.
 - c. Medium Shot (MS): a shot composition that shows about half of the complete subject. A medium shot is relative to what is considered a close-up shot and a long shot.
 - d. Wide Shot (WS): The subject takes up the full frame, or at least as much as possible. The same as a long shot.
 - e. Empty Nest (EN): shows a place without people or action. Sometimes a courtroom is shown after the trial when cameras are not allowed.
 - f. Pan Left or Right (PL/R): is the sweeping movement of a camera across a scene or the appearance of such movement. Left is a counter-clockwise movement and right is a clockwise movement.
 - g. Zoom In or Out (ZI/O): done by either moving the camera physically closer to the subject or using the mechanical features of the camera to simulate moving the camera towards (zoom in) or away from (zoom out).
 - h. Cutaway (CA): A shot of something other than the current action.
 - i. Over the Shoulder (OS): Looking from behind a person at the subject.
 - j. Cut In (CI): Shows some part of the subject in detail.
 - k. Point of View (POV): Shows a view from the subject's perspective.
11. Graphics Overlay: Describes the overlay of text or titles in the scene
12. Audio Type: Tells whether it is a live voice, voice-over, sound effect or music.
13. Video Length: Explain exactly how long the shot will be down to the frame. (30 frames per second)
14. Special Effects: Explain any special effects you might be using such as sepia.
15. Transition In: If you are transitioning in, explain the transition or give its name.
16. Transition Out: if you are transitioning out, explain the transition or give its name.



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PROBLEM SOLVING COMPETITION

DESCRIPTION:

The problem solving competition is designed for teams of college students from TEECA affiliated chapters. The competing teams will receive contest details, tools, and materials necessary to develop a solution to a specific problem. **NOTE: No tools are necessary for the event this year. Snap together materials will be utilized.**

TEAM:

Team members **MUST** be members of an affiliated TEECA college or university. Teams may have a max of seven members. The team may not be composed of over 40% graduate students. One team member should be designated as the team leader.

PROCEDURES:

1. All members of a team must be present at the announced location and time for the start of the competition.
2. Each team will receive contest details, tools, supplies, and related materials necessary for a problem to be solved specifically for the competition. The solution to the problem must be created using the materials provided.
3. Each team will develop a solution to the problem by:
 - a. Brainstorming the problem and developing a list of possible solutions.
 - b. Identifying the solution that has the best potential for solving the problem.
 - c. Preparing a sketch of the device that is part of the selected solution.
 - d. Constructing the device / mechanism that is part of the selected solution.
 - e. Testing and evaluating the device that is part of the selected solution.
 - f. Describing how the device solved the problem.
4. Each team will work in a designated area. All construction work must be done in the assigned area with the materials provided. Also, appropriate safety procedures must be followed during the construction and testing phases.
5. Forms for sketches and procedures will be provided and are to be turned-in for evaluation at the end of the contest (yet prior to the demonstration of the device for the judging team).
6. The solution to the problem, as completed and tested within the time announced for the activity, will be demonstrated for the judging team.
7. Judges will evaluate the completed device / mechanism, sketches and forms, and will witness a demonstration of the device solving the problem.

AUTHORIZED TOOL / MATERIAL LIST: Not needed



A basic materials kit will be provided to each team by the regional contest officials. The contents of the kit may vary by competition or site, usually depending upon the design challenge. For the 2014 regional event, the "typical" kit will consist of a pre-manufactured "Rokenbok" kit.

NOTE: The "PROBLEM" will be distributed on-site.



TEECA SOUTHWEST REGIONAL PROBLEM SOLVING CHALLENGE

SORTING IT ALL OUT!

The Problem:

Design a device that can successfully separate four different sized balls into four different containers at different specified heights.

Constraints/Parameters:

- The balls may not be altered in any way.
- The ball holder and sorting facility may not be altered in any way.
- Nothing may be fastened to the base or wall. No tape, screws, etc.
- Balls will vary in size and weight.
- The largest ball will be placed in the lowest storage area, the smallest will be stored in the highest compartment with the other two sizes in spaces in between with the smaller located above the larger of the two.
- This is a timed event and success is based on the fastest completion time.
- Balls may be reset by hand, but will incur a penalty.
- The device may be manipulated by hand and must be mounted in the design. For instance you cannot make a device that resembles a spoon and use your arms as the transport. The device must be mechanical in nature using simple machine actions to complete the task.
- The apparatus may only be built from the kit provided.
- Special consideration will be given to those devices that incorporate a variety of simple machines.
- The group must produce all ideas. No outside consultation is permitted.
- Use safe practices at all times while using equipment and materials.
- The device may be attached to the storage facility using fasteners within your kit.



Brainstorming Sheet

School: _____

Statement of the Problem: _____

	Sketch or Idea	How It Works	Pros/Cons
A			
B			
C			
D			

Circle the letter of the solution you believe will best solve the problem!

PROBLEM-SOLVING



	Sketch or Idea	How It Works	Pros/Cons
E			
F			
G			
H			
I			



Solution Design Sheet

School : _____

In the space below, provide a detailed sketch the technological device that was identified during the brainstorming session as the “best solution” to the problem.



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Evaluation and Summary Sheet

School : _____

TESTING THE DEVICE

Describe the criteria the device must meet as listed in the “problem” statement:

Next, test your developed solution using the appropriate technique. Summarize the results of the test and the modifications made to refine your solution (if applicable).



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Evaluating The Developed Solution

Describe how the device solved the problem in 35 words or less:

Briefly describe the role of each team member:

In 50 words or less, briefly describe why your team chose to use the materials that they did as they constructed the device.

When asked, present the solution and all paperwork to the judges for their review!



Problem Solving Judging Rubric

This section is worth 80 points

	10-9 Excellent	8 Acceptable	7-0 Needs Work
Evidence of Brainstorming	Several ideas provided with accompanying documentation as to why ideas were or were not used in the final design.	Several ideas provided but there is no documentation as to why ideas were or were not used in the final design.	Few ideas presented
Sketches	Several sketches are provided with accompanying documentation as to why ideas were used or not used.	A few sketches are provided but there is no documentation as to why ideas were used or not used.	No sketches provided
Problem-Solving Logic	Multiple entries in problem-solving log. Easy for evaluator to understand problems and associated solutions.	Several entries in problem-solving log but entries are vague and difficult to understand what actions were taken to solve the problem.	1-2 entries in the problem-solving log
Description of Solution	A detailed and accurate description of how the device works to solve the solution is given.	A description is given but it needs more detail and accuracy in order to understand how the device works.	A description is given but it is neither accurate nor detailed.
Solution Design Drawing	Hand drawing of the final working model. Detail shown. Note: Dimensions not needed	Hand drawing of the final working model. Little detail shown.	Rough sketch of the final working model.
Durability	The designed solution is able to withstand repeated use without falling apart.	The designed solution is constructed well enough to be judged but will fall apart with repeated use.	The designed solution is weakly constructed – falls apart during operation
Creativity of Project	Very creative solution to the problem. Many new ideas are presented with unique ways of incorporating supplies and materials into the final design. Evidence of combining materials to perform a new function not typical of intended use.	The solution displays some evidence of creativity. Some new ideas are presented with unique ways of incorporating supplies and materials into the final design.	Very little creativity in the solution. No new ideas presented. Supplies and materials are integrated into the final design in typical fashion.
Quality of the Solution/ How Well it Worked	The device performs each of the requirements without discrepancies. No help from outside sources.	The device performs each of the requirements - but with some discrepancy. Minimal help from outside sources.	The device only performs a portion of the listed requirements. Help is needed from outside sources in order for the device to work.



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Problem-Solving Judging Form

TEECA School _____

TEECA Team Members

Vendor _____

CRITERIA	MAX PTS	SCORE
Evidence of Brainstorming	10	
Sketches	10	
Problem- Solving Logic	10	
Description of Solution	10	
Solution Design Drawing	10	
Durability	10	
Creativity of Project	10	
Quality of the Solution/ How Well it Worked	1pt/target	
	Sub-Total	
Rules Violation Penalty (Max 10)	Deductions	
	TOTAL	

Feedback: _____



ROBOTICS COMPETITION

DESCRIPTION:

Students will use their choice of robotics platform to perform a series of autonomous and driver-controlled tasks during the competition. Students will be briefed on the required tasks at the beginning of the regional and will be given time to build and program up until the time of the competition.

TIMEFRAME:

1. Entries must be started and completed during the fall 2014 semester.
2. The playing field will be in place at the beginning of the regional competition and will remain in place until the scheduled event time.
3. Teams must check in at the prescribed check-in time to get robots and challenge information, and at the time designated for the competition, teams must check in with the event coordinator at least 5 minutes prior to competition.
4. Each team is allowed to use the playing field for practice up until the scheduled event time.

EVENT REGULATIONS:

1. Robot
 - a) The robot must operate both autonomously and by driver control.
 - b) No cord may extend from the robot for power or control purposes.
 - c) The robot may not alter or damage the event course or event area.
2. Safety considerations
 - a) If any robot is deemed unsafe, the judge may stop the demonstration. If the safety concern is addressed in a timely manner, another demonstration may be scheduled. The concern must be recorded in writing and explained to the team before they leave the demonstration area.

Note: Violation of any of the rules stated above may constitute immediate disqualification. All teams should display a fair and honest effort throughout the event.

EVENT REGULATIONS:

1. Practice time is used to install batteries, perform calibration, conduct practice runs, and make required modifications.
2. Teams preparing robots must NOT disturb other competing teams.
3. Each team must be ready to begin as soon as the judge completes the previous team's evaluation.

PERSONNEL:

1. Timekeeper during demonstrations.
2. Scorekeeper during demonstrations.

MATERIALS:

1. The competition playing field is 8' X 8' area setup on a foam surface.
2. Perimeter material: Prior to the event, the coordinator will establish a perimeter around the demonstration area based upon space available at the conference site that allows spectators to easily view but not interfere with the competition.
3. Stop watches
4. Table and chairs as needed for robot storage and maintenance.

**JUDGING CRITERIA:**

TEECA event organizers will appoint several judges to evaluate the contest entries. On scoring items where qualitative decisions or subjectivity is required, the judges' scores will be averaged. The judges' decisions are final and not subject to challenge.

Deductions and Disqualification: Deductions of twenty (20) points can be made for the following (only once for any or all infractions):

- a. Damaging the course
- b. Violation of time requirements
- c. Violation of any event regulations.
- d. Using improper batteries
- e. Arriving late to demonstration
- f. Any conduct unbecoming a professional participant

Disqualification results for the following:

- a. Failing to appear at demonstration
- b. Using an unsafe robot
- c. Repeated conduct unbecoming a professional participant



TEECA Southwest Regional Robotics Competition 2014

THE HOG PEN CHALLENGE

Students will construct a pig-collecting device to herd hogs from the HOG FARM to the HOG PEN during a two-stage round.

TWO-STAGE ROUNDS

AUTONOMOUS

One at a time, each team will have 45 seconds to run a pre-programmed path through the pen to collect as many hogs of your team color as possible. Red team will collect red hogs. Black team will collect black hogs. Each hog collected of your team's color is worth 1 point. Each team will have 2 minutes to regroup for the driver-controlled portion.

DRIVER-CONTROLLED

Simultaneously, the teams will have 2 minutes to maneuver through the pen collecting as many hogs as possible. A red hog collected by the Red Team is worth 1 point. A black hog collected by the Black Team is worth 1 point. A BLACK hog collected by the RED Team is worth 2 points. A RED hog collected by the BLACK Team is worth 2 points. Hogs may be collected/stolen from another team's hog pen during the round.

The scores from both the Autonomous and Driver-Controlled Stages will be tallied to determine the winner for each round. The team with the greatest overall points after three rounds will be considered the HOG PEN CHALLENGE CHAMPION.

GAME FIELD DIMENSIONS

The dimensions for the field are 8' X 8' area setup on a foam surface. The Robot Home and Hog Farm are 2' X 2'. The Hog Pen is a plastic milk crate that is 17" W X 14" H X 11" D. Milk crates are available from Lowes at:

http://www.lowes.com/pd_130463-84240

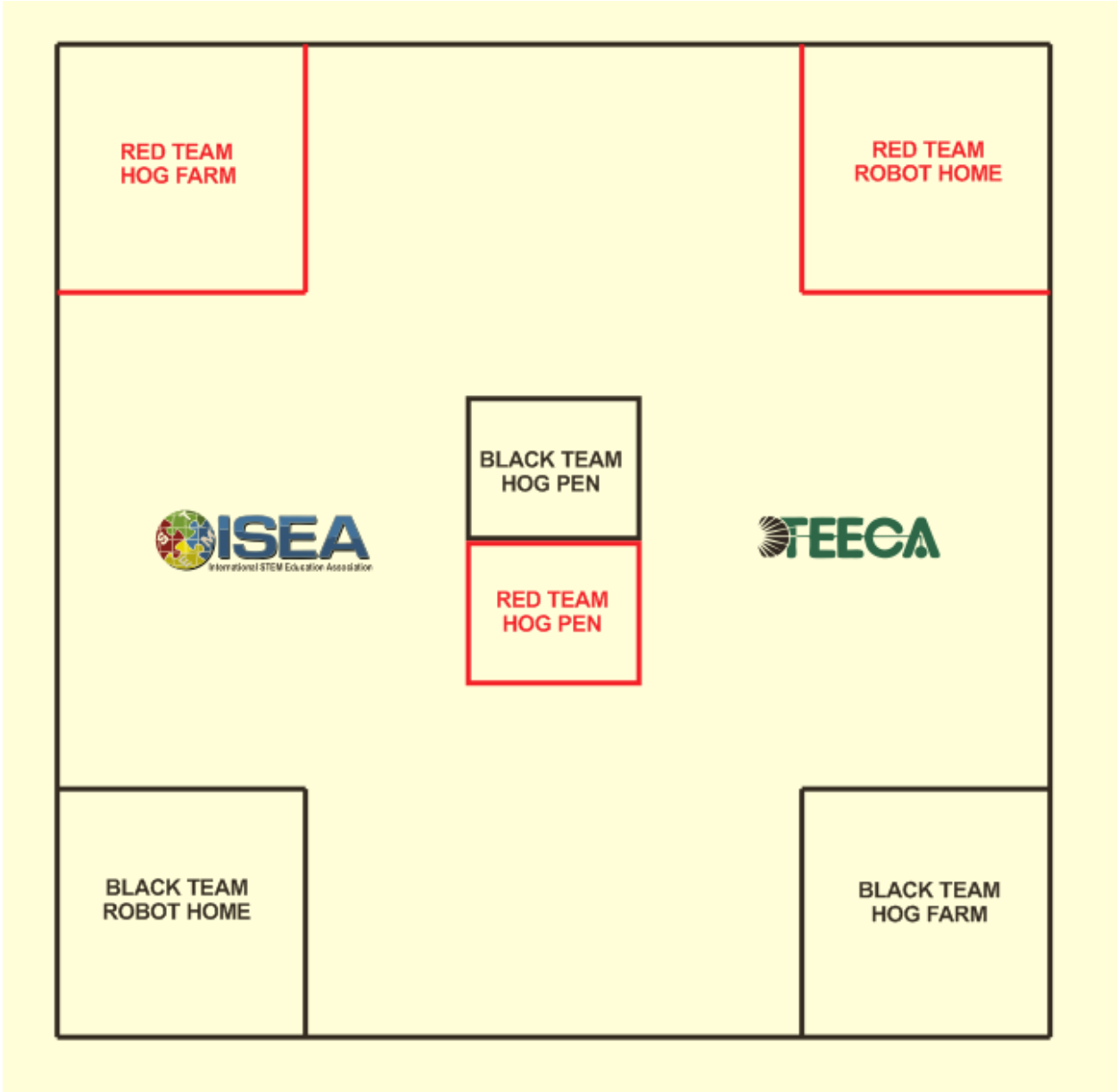
[CR0231_4294713240 ?productId=50125961&Ns=p_product_qty_sales_dollar|1&pl=1¤tURL=%3FNs%3Dp_product_qty_sales_dollar|1&facetInfo=](http://www.lowes.com/pd_130463-84240?productId=50125961&Ns=p_product_qty_sales_dollar|1&pl=1¤tURL=%3FNs%3Dp_product_qty_sales_dollar|1&facetInfo=)

Each of the hogs are made out of a stress-ball material. The approximate dimensions of the hogs are 4.5" W X 2.25" H x 1.75" D. There will be a total of 25 black and 25 red hogs placed inside the Hog Farm areas during each round.



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Robotics Judging Form

TEECA School _____

TEECA Team Members

Time to Complete Course (if under 5 min) _____

CRITERIA	MAX PTS	SCORE
Evidence of Brainstorming	10	
Sketches	10	
Problem- Solving Logic	10	
Description of Solution	10	
Solution Design Drawing	10	
Durability	10	
Creativity of Project	10	
Quality of the Solution/ How Well it Worked	10	
	Sub-Total	
Penalties _____	Deductions	
	TOTAL	

Feedback: _____



TEECA
SOUTHWEST REGIONAL
TEACHING LESSON COMPETITION

DESCRIPTION:

The TEECA Teaching Lesson Contest evaluates how well an individual, or pair of students, teach others about an integrated STEM topic. The topic is provided well in advance of the TEECA competition. All preparations for the actual lesson must be done by the student and/or team. During the actual competition, the lesson is timed and instructional material is evaluated. The judging panel (evaluators) will consist of:

- 1 in-service STEM Education teacher having a minimum of 3 years of teaching experience,
- 1 professor of Technology & Engineering Education,

The teaching evaluation is based on: teaching effectiveness, use of appropriate instructional materials, effective and appropriate lesson plan flow (i.e., stated learning objective, helpful and well scaffolded anticipatory set, evidence of learning assessment, ability to engage learners, and ability to demonstrate innovative teaching techniques.) Note: the handout(s) could be in the format of a Design Brief, an in-class worksheet, etc.

TEAM:

A team of up to three students may be involved in planning and developing the formal lesson. However, only one or two students may be designated as the primary teacher(s). Each school may enter one TEECA Lesson Planning team entry, and the entrants must be registered conference/regional participants.

PROCEDURES:

1. All students must “check in” at a designated time and place to be scheduled for their teaching performance.
2. The lesson should be a “live”, interactive teaching moment. It may be videotaped, but only for instructional purposes.
3. The student or duo will be teaching the team of judges who will “play” the role of the members of a typical technology education class (therefore, plan on a maximum of six judges at any contest site).
4. All planning is to be completed prior to the conference.
5. Each formal teaching segment should be designed for a maximum delivery period of 10 minutes. Lessons extending over 10 minutes will incur penalty points. Note: Lessons that continue beyond 12 minutes will be stopped.
6. The total cost for developing the unit of instruction should not be excessive.
7. Instructional Technology: Students and teams are responsible for their own media requirements for the contest. Equipment available at the SW Regional includes: a windows based computer is available with interactive white board and document projector. Also available at the SW Regional is a TV with DVD and VHS recorder. You may want to have a back-up plan for instruction as technology is never guaranteed to work.
8. A set-up time of 5 minutes is provided prior to starting the scheduled technical presentation. Note: Exceeding set-up time will also incur penalty points.
9. Videotaped segments or portions of commercial tapes may be used but should not exceed three minutes in length.
10. Each individual or team should prepare six copies of a typed instructional handout. Student handouts should not exceed six pages!



Suggested items that will be evaluated include:

- (a) A Design Brief that introduces a lesson
- (b) Worksheet with special graphics related to the main topic
- (c) A formal lesson plan (in a format of your own design)
- (d) Other

Note: If teaching aids are to be used plan on a maximum of six students (i.e., judges) in the “class”.

11. The lesson must not create a hazardous situation.

12. Both the (a) TEECA teaching presentation and (b) all developed instructional materials will be reviewed by the judges.

JUDGING CRITERIA:

The Teaching Lesson Contest is based on students effectively teaching a topic to a live, interactive group of students. To maintain consistency, the “class” will be the team of judges. This means the judges (a maximum of 6 individuals) may be engaged as normal students, responding to questions and completing tasks during the teaching unit.

The specific values are outlined on the Judge's Scoring Sheet (included in this document).

The percentages are included below.

1. Paperwork & Teaching Aids — 20% of over-all score

Format, content, appropriateness to the assigned theme, instructional value, and completeness of all documentation.

2. Teaching — 70% of over-all score

Teaching is defined as: use of instructional activities that promote student learning. (In the past students focused their teaching on traditional presentation methods, i.e., PowerPoint, however, as all good teachers know, teaching should include more than a PowerPoint lecture. The teaching in the contest should include an innovative and helpful anticipatory set that sets up stated learning outcomes, instructional activities that support the learning outcomes, and some form of evaluation or assessment of student learning). Also included in this criteria is the nature of the delivery of the content, organization of the lesson, personal appearance, and the educational value of the lesson.

3. Rule / guidelines violations—10% of over-all score

Points may be deducted due to violation of any guidelines or rules!

GENERAL INFORMATION:

1. For the benefit of the judging team, the formal teaching segments (i.e., student performances) may be videoed for timing purposes.

2. Conference participants are encouraged to observe the lessons, as are other Contestants, but other contestants will not be permitted to view performances prior to their scheduled time to compete.

Conference participants are not to cheer, prompt, or in any way interact with the teachers or judges.

3. Video's already queued to the proper place of the tape, PPT programs installed on shared equipment, and other media arrangements are the responsibility of the contestant(s).

ROOM ARRANGEMENT:

1. It is recommended the room be arranged as a typical classroom with a presentation area at the front of the classroom. Note: Please remember the judges are also the students, so they should be (a) able to see everything and (b) in a position to participate fully as requested by the teacher(s).

2. For the benefit of contestant(s), this arrangement can be modified slightly as needed.



TEECA
SOUTHWEST REGIONAL
Teaching Lesson Judging Form

TEECA School _____

TEECA Team Members

Time to Complete Lesson _____

HANDOUTS / TEACHING AIDS

Lesson plan

- 5 - 4 - 3 - 2 - 1 - 0 Poor

Good 10 - 9 - 8 - 7 - 6

_____/10

(Instructional nature of the lesson, inclusion of learning objectives, connection to standards, etc.)

Media

0 Poor

Good 5 - 4 - 3 - 2 - 1 -

_____/5

(Quality of display graphics, appropriateness of materials, information contained in the media)

Student handouts

0 Poor

Good 5 - 4 - 3 - 2 - 1 -

_____/5

(Format, spelling, grammar, information related to the lesson topic, etc.)

TEACHING OF THE ACTUAL LESSON

Introduction

- 5 - 4 - 3 - 2 - 1 - 0 Poor

Good 10 - 9 - 8 - 7 - 6

_____/10

(Gains immediate attention of the students, introduces topic well, addresses learning objectives)



Nature of lesson

- 5 - 4 - 3 - 2 - 1 - 0 Poor

Good 10 - 9 - 8 - 7 - 6

(Logical sequence, stays "on topic" throughout the lesson, etc.)

_____/10

Instructional Activities

----- 0 Poor

Good 20 - - - - -

(Uses media effectively by referring to content of graphics or explaining points on handouts)

_____/20

STEM Instructional value of the lesson

Good 20 - 18 - 16 - 14 - 12 - 10 - 8 - 6 - 4 - 2 - 0 Poor

(Followed content, the students were actively engaged in the lesson, learning was achieved)

_____/20

Personal factors

- 5 - 4 - 3 - 2 - 1 - 0 Poor

Good 10 - 9 - 8 - 7 - 6

(Appearance, eye contact, command of attention, etc.)

_____/10

RULE VIOLATIONS

Event violations

5 - 4 - 3 - 2 - 1 - 0 Many

None 10 - 9 - 8 - 7 - 6 -

(Set-up or presentation time, illegal participation, etc.)

_____/10

Total (of 100 points) _____

Feedback: _____



The 2012 TEECA Southwest Regional Teaching Lesson Topic

STEM CONCEPTS: Math in Production Technology = Trigonometry in Action

Production technologies which include Manufacturing and Construction are well equipped to incorporate some key principles of mathematics. In particular, Trigonometry or the study of triangles (measuring triangles), dating back to the early 2nd century, has evolved over time through various cultures for many different reasons. As a teacher you will need to address what integrative aspects of STEM your lesson would cover, to include standards. You may choose either or both areas of production if necessary for continuity within the lesson.



LIVE MANUFACTURING COMPETITION

DESCRIPTION:

The regional live manufacturing competition is designed to both encourage and reward the study of production technology as it relates to manufacturing. Each participating team must include college students from TEECA affiliated chapters. The teams must design, document, fabricate and implement a continuous manufacturing system to produce an assigned product using only the tools on the official list.

Evaluation is based on team performance, safety, craftsmanship of tooling design, documentation of design efforts, and quality of the product. Tooling is defined as jigs, fixtures and gauges produced or modified by the manufacturing teams.

It should be noted that part of the competition involves a certain degree of problem solving skills, especially when creating tooling. Teams are encouraged to be creative in the fabrication of the tooling to optimize both speed and repeatability. Exploiting the creativity of each school will allow the products as well as the tooling to increase in quality. The use of CNC equipment, lasers and automated systems should be encouraged if the schools have access to such equipment. Partnering with a company with such equipment is also recommended, however, utilizing the equipment should be a learning experience for the students. Selection and use of materials, equipment or external partnerships should be well documented and defended during a presentation.

TEAM:

Team members **MUST** be student members of ITEEA and members of an affiliated TEECA college or university and must be registered participants at the regional and/or national conference. Documentation of membership is required in order to compete. Teams must have at least three, but not more than six members. Each team is allowed one graduate student to participate in the competition.

REGIONAL VS NATIONAL COMPETITION:

The most notable difference between the regional event and the national competition is that the national event includes an oral multimedia presentation and review by industrial professionals. Both require pre-production and on-site production operations. All schools are encouraged to participate in this event.

Regional coordinators have the right to change the regional competition to suite specific regional needs. Competition facilities, coordinators, and team participation are just some factors, which could influence a coordinator to change the venue for the competition and come up with an alternative



competition. Notification of changes will be made prior to the competition so that teams may have sufficient time to prepare for the event.

PROCEDURES:

1. Members of each team must be present at the designated location at the announced time for the start of the contest.
2. Teams will receive a set of drawings for the product prior to the conference to work on the documentation, tooling and materials prior to the competition (explained in the "Pre-Production" phase). Teams will be responsible for materials needed for the product and tooling.
3. Each team will develop and document a complete **continuous** manufacturing (line production) system to include all items listed in the judging form.
4. Each team will work in a designated area within the conference center. No laboratory facilities will be provided. The work must be done in the assigned area with only the tools on the tool list. All teams must provide their own tools on the official tool list.
5. Forms for operation process and flow process charts, tooling and inspection gage drawings and plant layouts will be provided. Plant layouts should be reflective of the final production run as well as activities associated with pre-production. Teams may create their own forms prior to the conference; however, they should be very similar to the copies provided.
6. The complete manufacturing system must be finished prior to the specified testing time, usually 1-6 hours based on the recommendation of coordinators and judges. Because pre- production is performed off-site, less time is needed for on-site production. A minimum of one hour is allotted for set-up, with the production run to run at the end of the allotted set-up. Again, the site coordinator will provide the time frame for the production set-up and run.
7. Each manufacturing system will be tested during a scheduled production run at which time a specific number of products will be produced. Regional: 10 products (unless the coordinator notifies you of a change), National: 10 products.
8. Judges will be chosen by the conference coordinator (or his/her designee) and will evaluate the quality and the efficiency of the production line as well as the products produced. Judges scores are final and are not subject to review. If possible, a written review of the competition will be provided to the teams at a later date.
9. The conference production run must be done with only the tools listed on the official tool list. Pre-production off-site activities are limited only to what tools and machines are available to the team.
10. Teams may use computers and printers during the set-up phase of the production run; however, each team is responsible for such equipment.

PROCEDURES:

1. Pre-Production
 - a. Each team is responsible for the design and fabrication of all necessary jigs and fixtures required to build a quality product.
 - b. Each team is responsible for the materials needed for jig construction as well as part production.



- c. All jigs and fixtures will need to be completed prior to arrival at the ITEA conference.
 - d. All parts will have finishes that are representative of their respective school. If your school has two colors such as blue and gold, the product will include those colors. All parts will be finished prior to arrival at the ITEA conference.
 - e. The fabrication of jigs/fixtures as well as parts should display good craftsmanship.
 - f. At the ITEA conference, the final assembly process will only include cordless drilling/driver applications. Each team will be responsible for providing the necessary number of cordless drills and batteries to accomplish the production.
 - g. Jigs and fixtures can be made from any material. An explanation of the types of materials used will be necessary in the presentation phase. Be sure to address the engineering properties of each material and why it was chosen. (e.g., White oak was chosen over white pine for the fencing material of all jigs due to the abrasion resistance offered in the material.)
2. Presentation
- a. Portfolio (all items must be saved to a CD and presented to judges)
 - i. Each portfolio will require the following pages, beyond these pages, there is no limit on the other sections addressed in ii below.
 - 1. Cover page to include school name, conference title, conference location, TEECA Manufacturing Competition, project title, and dates of conference to include the year.
 - 2. Table of Contents
 - 3. Name and signature of TEECA Advisor(s), complete with email address(es) and contact phone number(s). List of competing team names and email address.
 - 4. Listing of off-site participants and what their relationship was to the production. (e.g. Billy Jones – Drilled vertical pieces during pre-production run, or Sue Smith – Applied colored lacquer to end during pre-production run) Additional faculty names and level of participation. (e.g. Dr. Jonson – opened labs in evening, advised on safety considerations proposed by team.
 - ii. Each team will be required to present evidence of the pre-production process to include the following:
 - 1. Production Design development
 - a. Jig and fixture sketches
 - b. Jig and fixture technical drawings (must be CAD drawings) in 2D and/or 3D form
 - c. Product drawings
 - i. Orthographic drawings
 - ii. Pictorial assembly drawings
 - 2. Engineering principles
 - a. Operation process chart
 - b. Flow process chart
 - c. Facilities/plant layout
 - d. Quality control
 - 3. Safety Design
 - a. Evidence in fixture design
 - b. Evidence in pre-production phase



- iii. Each team will need to provide financial information of the product/production to include the following:
 1. Bill of materials
 2. Cost analysis
- b. Oral Presentation
 - i. Each team will be required to orally present their production process in a professional manner, with each team member participating equally in the presentation. Each team will have 10 minutes to present their production process to the judges. The following should be included in the documentation:
 1. Pictures of the design process to assist in explaining the process.
 2. CAD drawings of jigs and fixture designs to assist in explaining the design and engineering principles.
 3. Pictures of pre-production, providing evidence of the participants creating parts and using jigs and fixtures. The positive and negative aspects of the pre-production process should be addressed. All negative aspects should be addressed in a how the problem was fixed.
 4. A sampling of jigs and fixtures used in the pre-production process. Note: should be the same jigs and fixtures used in pre-production. See Figure to the left for an example of the quality which is expected for this presentation.
3. Production
 - a. Each team will have 30 minutes to setup the assembly line.
 - b. Each team is responsible for bringing the necessary clamps, drills, bits, fasteners, and drivers needed to complete the assembly/product.
 - c. All jigs/fixtures will be brought to the competition. There will be no construction of jigs and fixtures at the competition site.
 - d. The only power tools allowed during the competition are cordless drill/drivers.
 - e. Each team will need to provide all parts needed for the final assembly.
 - f. All parts will be made with poplar (available at most home improvement stores). There should be enough finished pre-fabricated parts to make 15 finished products.
 - g. Be sure to check the product information sheet to ensure that certain parts will have final drilling processes needed for assembly which cannot be drilled off-site.
 - h. The event will be timed and judged in accordance with safety, speed and quality of the assembly line and product.
4. All teams should display a fair and honest effort throughout the event based on "student" work. Although faculty input is needed and sometimes necessary, the production development should be that of students and not faculty. Due to the complexity, this is considered a learning process and any input from faculty should be noted in the presentation portion of the competition.

EVENT REGULATIONS:

1. Safety is the number one concern of this competition and any violation of safety will have a profound impact on final scoring with each notable incident having a ten (10) point deduction. This can be from evidence found in pictures and or the live competition portion of the event.
2. Work should be completed by students. Any work or assistance given by instructors/advisors should be documented.

**EVALUATION:**

1. Disqualification results for the following:
 1. Failing to appear at either the presentation or live competition.
 2. Evidence that an unreasonable amount of input was made by the instructors/advisors
2. The evaluation will be made on the following sections, based on a judging sheet provided.
 1. Pre-Production
 2. Presentation
 3. Live Production

PERSONNEL:

1. Timekeeper during live production
2. Scorekeepers/judges during pre-production, presentation and live production.

MATERIALS:

1. Stop watch for the Presentation and Production
2. Table and chairs as needed for
 - a. Presentations
 - b. Live Production
3. Calculators, two (2) or a computer with spreadsheet software.

JUDGING CRITERIA:

TEECA event organizers will appoint several judges to evaluate the contest entries. On scoring items where qualitative decisions or subjectivity is required, the judges' scores will be averaged. The judges' decisions are final and not subject to challenge.



Technology Education Collegiate Association
TEECA LIVE MANUFACTURING COMPETITION

Judging Form

School : _____ Team Captain : _____
 Judge: _____ Date : _____

EVALUATION CRITERIA

Pre-Production

CAD Drawings	50 pts.	<input type="text"/>
Jig/Fixture Design	100 pts.	<input type="text"/>
Jig/fixture quality	50 pts.	<input type="text"/>
Engineering principles	30 pts.	<input type="text"/>
Part quality (specifications)	50 pts.	<input type="text"/>
Finish (school colors, quality)	20 pts.	<input type="text"/>
Pre-production process	100 pts.	<input type="text"/>
Pre-production safety	50 pts.	<input type="text"/>

TOTAL
450 pts

Presentation

Portfolio		
Cover Sheet	1 pt.	<input type="text"/>
Table of Contents	1 pt.	<input type="text"/>
Signature Page	1 pt.	<input type="text"/>
Participant Page	1 pt.	<input type="text"/>
Jig/Fixture Sketches	20 pts.	<input type="text"/>
Jig/Fixture Drawings	30 pts.	<input type="text"/>
Product orthographic drawing	10 pts.	<input type="text"/>
Product pictorial assembly drawing	10 pts.	<input type="text"/>
Operation process chart	10 pts.	<input type="text"/>
Flow process chart	10 pts.	<input type="text"/>
Facilities/plant layout	10 pts.	<input type="text"/>
Quality Control	20 pts.	<input type="text"/>
Fixture safety design	10 pts.	<input type="text"/>
Pre-production safety incorporation	10 pts.	<input type="text"/>
Bill of materials	10 pts.	<input type="text"/>
Cost analysis	30 pts.	<input type="text"/>
Overall appearance of portfolio/neatness	30 pts.	<input type="text"/>
Oral Presentation		
Professional Dress	10 pts.	<input type="text"/>
Professional knowledge/understanding	10 pts.	<input type="text"/>



Team Participation	10 pts.	<input type="text"/>	
Presentation of Pre-Production (pros/cons)	20 pts.	<input type="text"/>	
Pre-production participation	20 pts.	<input type="text"/>	
Design Considerations	20 pts.	<input type="text"/>	
Cost Analysis	20 pts.	<input type="text"/>	
Presentation of Production Concept	20 pts.	<input type="text"/>	
Overall oral presentation quality	50 pts.	<input type="text"/>	
	TOTAL		<input type="text"/>
	390pts		

Production

Jig/Fixture Design	100 pts.	<input type="text"/>	
Assembly line setup	50 pts.	<input type="text"/>	
Safety	50 pts.	<input type="text"/>	
Quality Control	50 pts.	<input type="text"/>	
Product quality	100 pts.	<input type="text"/>	
Rule compliance	100 pts.	<input type="text"/>	
	TOTAL		<input type="text"/>
	450 pts		
	GRAND		<input type="text"/>
	TOTAL		

COMMENTS:



PROJECT SPECIFICATIONS:

The plans for the product are found on the drawings at the end of this document. The product is designed to be used as a recruitment tool for technology education teachers to place on their desks or other appropriate location. Teams may choose the appropriate materials for construction of their products. A rationale for material choice must be documented in the portfolio. Specific instructions are found on the drawings at the end of this document.

To facilitate transportation and to keep costs down, it is been decided that a smaller project would be better suited for the competition. It is assumed that the teams will produce smaller tooling as well as tool selection that will be suitable for transportation to the regional sites and Orlando for the ITEEA Conference.

OPERATIONS TO BE DONE ON SITE:

All tooling is to be constructed and tested prior to the conference. All parts with the exception of the following operations are to be constructed and finished with the appropriate school color(s) prior to the conference. The following operations are the only ones which will be done on site as part of the production run:

1. Drill .25 diameter hole in Crank Disc for Crank Handle.
2. Drill and countersink pilot holes (2) in Base for attaching to Back Plate with #6 x 1-5/8 drywall screws.
3. Drill pilot holes (2) in Back Plate for attaching to Base with #6 x 1-5/8 drywall screws.
4. Cut Crank Handle to length and lightly chamfer the cut end with sandpaper.
5. Cut Pins (two per product) to length and lightly chamfer the cut ends with sandpaper.
6. Assemble 10 products using quick curing glue for all glue joints.

TOOLS/SUPPLIES TO BE USED DURING PRODUCTION RUN:

The following tools are the only tools which will be allowed for use during the on-site production run:

1. Cordless drill/drivers and/or hand drills/screwdrivers (total 4 max.) and batteries (extra batteries may be used if needed).
2. Drill, countersink, and driver bits.
3. Cordless saw (1 max.) and batteries for cutting dowel to length. OR



4. Hand saw for cutting dowel to length.
5. Cordless glue guns (2 max.) (You can use any type of glue you wish to provide. You do not have to use a glue gun.)
6. Sandpaper (no power sanders).
7. Fasteners (two #6 x 1-5/8 drywall screws per product).
8. Safety glasses (required for all members).
9. Safety supplies.

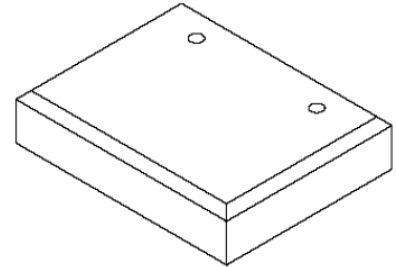
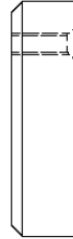
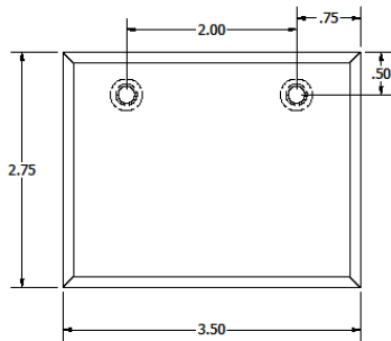
TOOLS/SUPPLIES TO BE USED DURING ON-SITE SET UP PERIOD:

In addition to the tools to be used during Production Run, you may wish to bring additional tools to the conference for the purpose of setting up your production run, clamping tooling to the tables, adjusting tooling if needed, and clean up after the Production Run. As all the work on the tooling and the majority of the work on the product is to be done off-site prior to the conference, there should be no need to bring large quantities of tools. Just bring what you will need. Recommended tools/supplies:

1. Clamps.
2. Tools for adjusting tooling.
3. Shop Vac (for cleanup after production run).



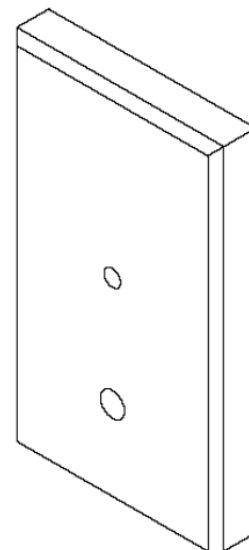
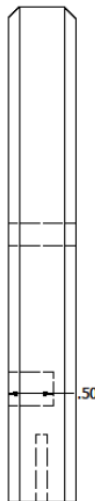
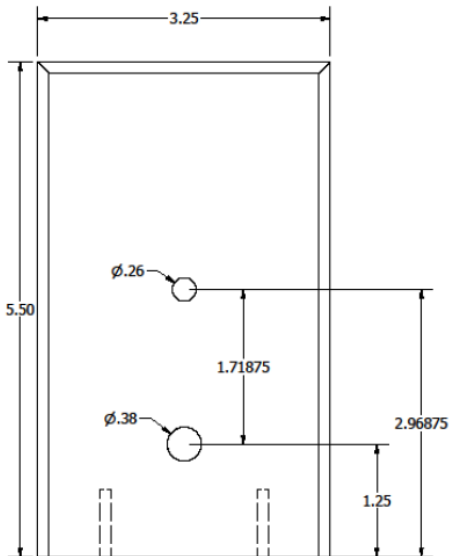
FAST RETURN ACTUATOR



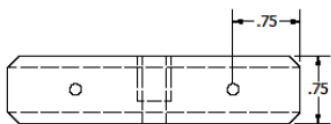
Note: Do not drill pilot holes or countersinks for screws to attach base to back off-site. This operation is required to be done at the conference.



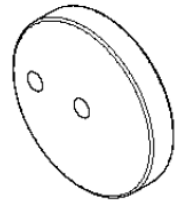
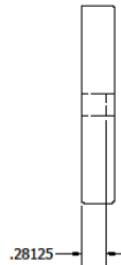
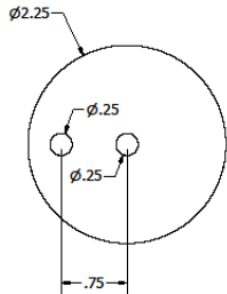
1 BASE PLATE
CHAMFER .125" X 45 DEGREE TYPICAL
TOLERANCE +/- .03"
(2) #6 X 1-5/8" DRYWALL SCREWS



Note: Do not drill pilot holes or countersinks for screws to attach base to back off-site. This operation is required to be done at the conference.



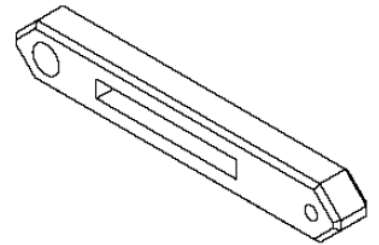
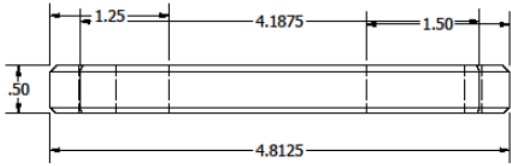
2 BACK PLATE
 CHAMFER .125" X 45 DEGREE TYPICAL
 TOLERANCE +/- .03"
 (2) #6 X 1-5/8" DRYWALL SCREWS



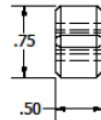
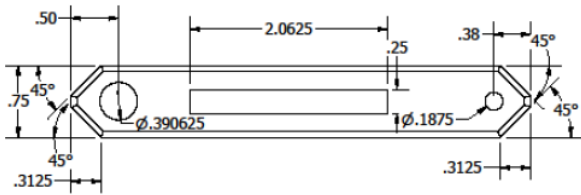
Note: Do not drill .25 diameter hole for Crank Handle off-site. This operation is required to be done at the conference.



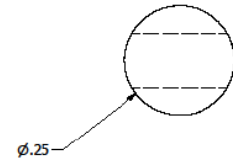
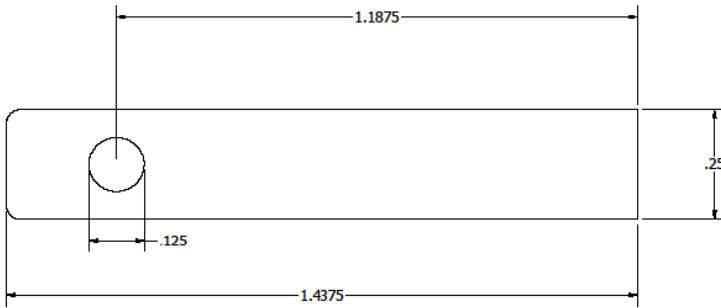
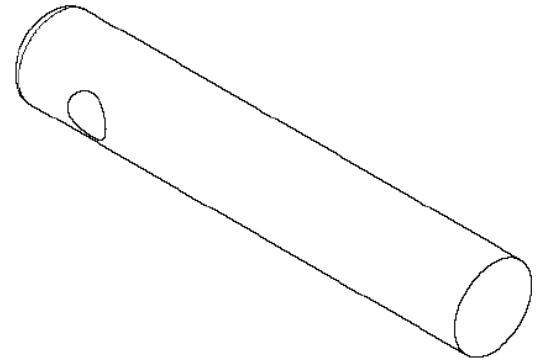
3 CRANK DISC
 CHAMFER .0625" X 45 DEGREE TYPICAL
 TOLERANCE +/- .03"



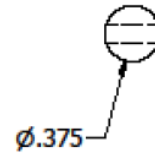
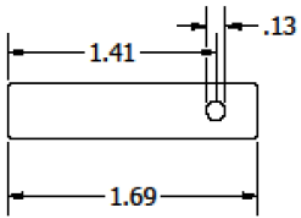
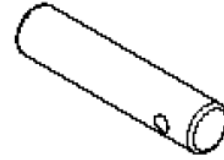
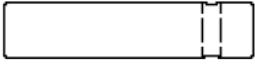
Note: .25" X 2.0625" slot may have rounded ends.



4 YOKE
 CHAMFER .0625" X 45 DEGREE TYPICAL
 TOLERANCE +/- .03"



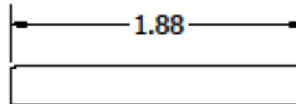
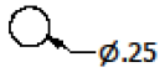
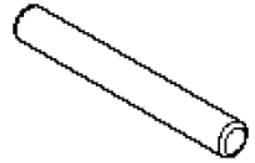
5 AXLE
CHAMFER .0625" X 45 DEGREE EXPOSED
END
TOLERANCE +/- .03"



6 PIVOT AXLE
CHAMFER .0625" X 45 DEGREE EXPOSED
END
TOLERANCE +/- .03"



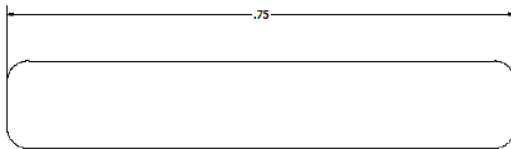
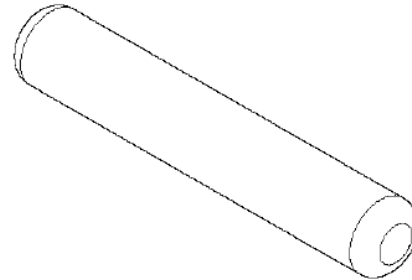
Note: Do not chamfer ends or cut Crank Handle to length off-site. These operations are required to be done at the conference.



7 CRANK HANDLE

CHAMFER .0625" X 45 DEGREE EXPOSED
END
TOLERANCE +/- .03"

Note: Do not chamfer ends or cut Pins to length off-site. These operations are required to be done at the conference.



8 PINS (two per product)

CHAMFER .0625" X 45 DEGREE EXPOSED
END
TOLERANCE +/- .03"



Item Name: Fast Return Actuator

No.	Name	Qty.	Material	Thick	Width	Length	Comments
1	Base Plate	1		0.75	2.75	3.5	Chamfer .125" x 45 degrees top edges
2	Back Plate	1		0.75	0.325	5.5	Chamfer .125" x 45 degrees exposed edges
3	Crank Disc	1		0.375	2.25		Chamfer .0625" x 45 degrees exposed edges
4	Yoke	1		0.5	0.75	4.8125	Chamfer .0625" x 45 degrees exposed edges
5	Axle	1		0.25		1.4375	Chamfer .0625" x 45 degrees ends
6	Pivot Axle	1		0.375		1.69	Chamfer .0625" x 45 degrees ends
7	Crank Handle	1		0.25		1.88	Chamfer .0625" x 45 degrees ends
8	Pins	2		0.125		0.75	Chamfer .0625" x 45 degrees ends
9	Drywall screws	2					#6 x 1-5/8"

Stain:

Finish:

9/3/2014



LAND TRANSPORTATION CHALLENGE

“The Amazing Race”

DESCRIPTION

The TEECA Transportation Contest is about conceptualizing and constructing transportation device(s) or craft(s) for optimal efficiency. The contest has several variations and involves concepts associated with different types of transportation or systems associated with transportation. Scoring is based solely on efficiency of completing tasks correctly.

CHALLENGE

This year’s challenge involves moving from one place to another by competing in ISEA’s “*The Amazing Race*”. Each team will move to a specified location and complete specified challenges before receiving the clue for the next location and challenge. Each transportation challenge must be completed prior to moving on.

TEAM:

Team members **MUST** be members of an affiliated TEECA college and university and must be registered participants at the conference. Each transportation team will consist of 2-5 students, the team may be composed of no more than 40% graduate students. A maximum of one transportation team may enter from each institution.

PROCEDURES

1. All teams must “check in” at a designated time and place to receive the contest specifications.
2. A set of specific contest rules will be included in the contest packet. The contest rules will identify basic criteria and related details for the competition. All contest rules must be adhered to.
3. Aspects of the specific transportation device or system to be developed will occur at each regional contest site. Note: The physical work on the solution for the national contest will be completed off-site. Regional contests may be completed on-site or off- site depending on the challenge.
4. Each team will complete, test and modify their solutions prior to moving to the next challenge.
5. All entries must be completed in total prior to moving forward in the competition.
6. Teams are responsible for cleaning-up their area prior to the conclusion of the contest and all materials must be placed correctly in the storage container before they have “Completed” the challenge.

NOTE: Violation of any of the rules stated above may constitute immediate disqualification. All teams should display a fair and honest effort throughout the event.

**MATERIALS:**

Teams are limited to the materials provided on-site. No additional tools or materials may be used. If you have questions, please contact the event coordinator:

JUDGING CRITERIA:

TEECA event organizers will appoint several judges to evaluate the contest entries. On scoring items where qualitative decisions or subjectivity is required, the judges' scores will be averaged. The judges' decisions are final. All devices will be scored on the basis of the construction and efficiency. The team will not be declared finished until all materials are placed correctly back into the storage container.



TEECA
SOUTHWEST REGIONAL
Transportation Judging Form

School: _____ Competitor: _____

START TIME: _____

END TIME: _____

OVERAL PLACE: _____

Penalties: _____



TEECA
SOUTHWEST REGIONAL
AIR TRANSPORTATION CHALLENGE
“RockPort USA” Flight Challenge

DESCRIPTION

The TEECA Air Transportation Contest is concerned with tactile skills associated with flying a remote control quadcopter. Students will be required to fly and enclosed flight course. Scoring is based solely on efficiency of completing tasks correctly.

CHALLENGE

This year’s challenge involves moving from one place to another by competing in ISEA’s “*RockPort USA, Flight Challenge*”. Each team will fly a remote controlled drone quadcopter through a series of challenges in a 10’x14’x55’ enclosed arena. Each flight challenge must be completed prior to moving on.

TEAM:

Team members **MUST** be members of an affiliated TEECA college and university and must be registered participants at the conference. Each transportation team will consist of 2-5 students, the team may be composed of no more than 40% graduate students. A maximum of one transportation team may enter from each institution.

PROCEDURES

1. All teams must “check in” when packets are distributed for a specific flight time. Missing the flight time will result in elimination from the contest.
2. Aspects of the specific transportation device or system to be developed will occur at each regional contest site. Note: The physical work on the solution for the national contest will be completed off–site. Regional contests may be completed on-site or off- site depending on the challenge.
3. Each team must complete each obstacle prior to moving to the next obstacle. Skipping an obstacle will result in elimination.
4. The time will stop upon the landing on the helipad after all obstacles or when the quadcopter runs out of battery power, whichever comes first. The winner will be decided on the greatest distance flown/most obstacles completed successfully or the fastest completion time.
5. Students may practice at any point up to flight time. Practice times are limited to 5 minutes.

NOTE: Violation of any of the rules stated above may constitute immediate disqualification. All teams should display a fair and honest effort throughout the event.



TEECA

SOUTHWEST REGIONAL

Lightning STEM Displays

DESCRIPTION

The TEECA Lightning STEM Displays are a venue to showcase student work in the area of STEM education. The displays can be table top, free standing, hands-on, poster board, etc. The entries will be judged by conference participants based on educational/informational value.

CHALLENGE

Develop a hands-on display which teaches a STEM concept or provides information valuable to the classroom teacher. The display should assist the classroom teacher with something they can take back to the school and use.

TEAM:

Team members **MUST** be members of an affiliated TEECA college and university and must be registered participants at the conference. Each team will consist of 1-2 students, the team may not be composed of no more than one graduate student. There is not limit on the number of teams from each institution.

PROCEDURES

1. All teams must have the display set up and ready for viewing by Sunday evening.
2. Each team must provide handouts, or provide a method of providing information to the conference participants. This may be in the form of a web-site or digital media.
3. Teams should, but are not required to have personnel present during breaks to answer questions. Being present between sessions will help conference participants to understand your display. The displays can be static.
4. Judging will stop on Monday at 4pm.
5. A table will be available if requested.



TEECA
SOUTHWEST REGIONAL
TECHNOLOGY CHALLENGE

DESCRIPTION:

The purpose of the TEECA Technology Challenge Contest is to provide a means for TECA members to demonstrate their knowledge about the core concepts of technology, the profession of technology education, pedagogical concepts such as curriculum, instruction, and assessment.

TEAM:

1. A maximum of one team per school may enter the contest.
2. Each team may have one to four members, each a registered participant at the conference.
3. A team may have one graduate student member.
4. All TEECA Technology Challenge team members must be currently enrolled in the university they are representing, and be registered participants of the conference/regional.
5. A team may not change membership at any time during the competition.

PROCEDURES:

1. Teams must register to compete in the contest prior to the event.
2. Teams will be paired by lottery for the first (initial) round.
3. When instructed, two teams will enter the contest area and be seated.
4. Prompting of contestants by members of the audience will not be permitted.
5. Preliminary rounds will consist of 5–8 questions and final rounds will have 6–12 questions drawn from the TEECA Technology Challenge question bank.
 - a. Questions will be drawn from the seven categories found in the Technology for All Americans© national standards documentation:
 - (1) Agricultural and Bio-related Technologies
 - (2) Construction Technology
 - (3) Energy and Power Technologies
 - (4) Information and Communication Technologies
 - (5) Manufacturing Technology
 - (6) Medical Technology
 - (7) Transportation Technology
 - (8) An 8th category used during this event will include questions related to “Technology Education / Professional” concepts
 - (9) The final category will include questions related to curriculum, instruction, and assessment practices.
 - b. In case of a tie score at the end of a round, there will be one tie-breaking question in the category of the Master of Ceremony's (MC) choice.
6. The MC will read each question. As soon as a contestant signals that they are able to answer, the MC will stop reading the question. The team has ten (10) seconds to begin answering
 - a. For each correct answer the team will receive ten points.



b. If a question is answered incorrectly, or if a member of a team signals and cannot answer the question, five points are subtracted from the team's total points.

(1) If the question has a yes-no answer or true-false answer and is missed, the next question will be asked.

(2) If any other type question was asked and the team member pressed the button before the question was finished, the member must give the same answer that is on the answer card; but if the answer is incorrect, the entire question will be reread for the other team. Within 10 seconds, one person on the opposing team may answer after giving the signal. The team may **NOT** discuss the question or possible answers.

7. Transmitting or recording devices will not be permitted in the contest area.

8. Failure to show up for your scheduled contest will result in disqualification of your team. If part of a team shows up, they may compete, but the other member(s) of the team cannot join the team after the first question is read. They may rejoin for the next round.

9. Elimination continues until a 1st, 2nd and 3rd place team is determined.

RULES OF CONDUCT:

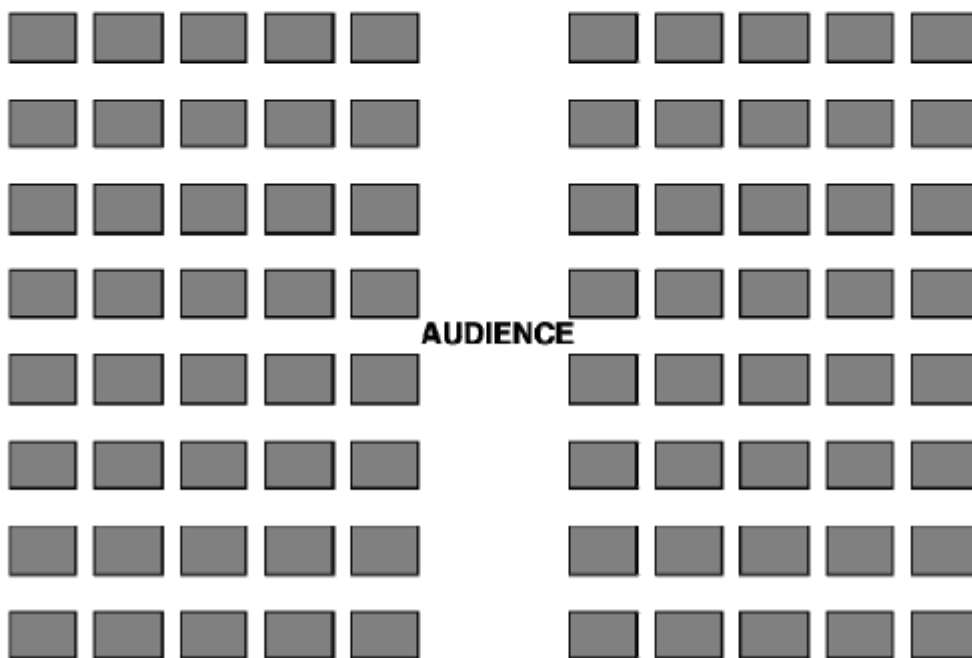
Any poor conduct, cheating, foul language, abuse of equipment will result in team disqualification. Any discrepancy with a question will be taken up in an orderly and proper manner with the judges. The decision of the judges is final.



TEECA
SOUTHWEST REGIONAL
ROOM ARRANGEMENT

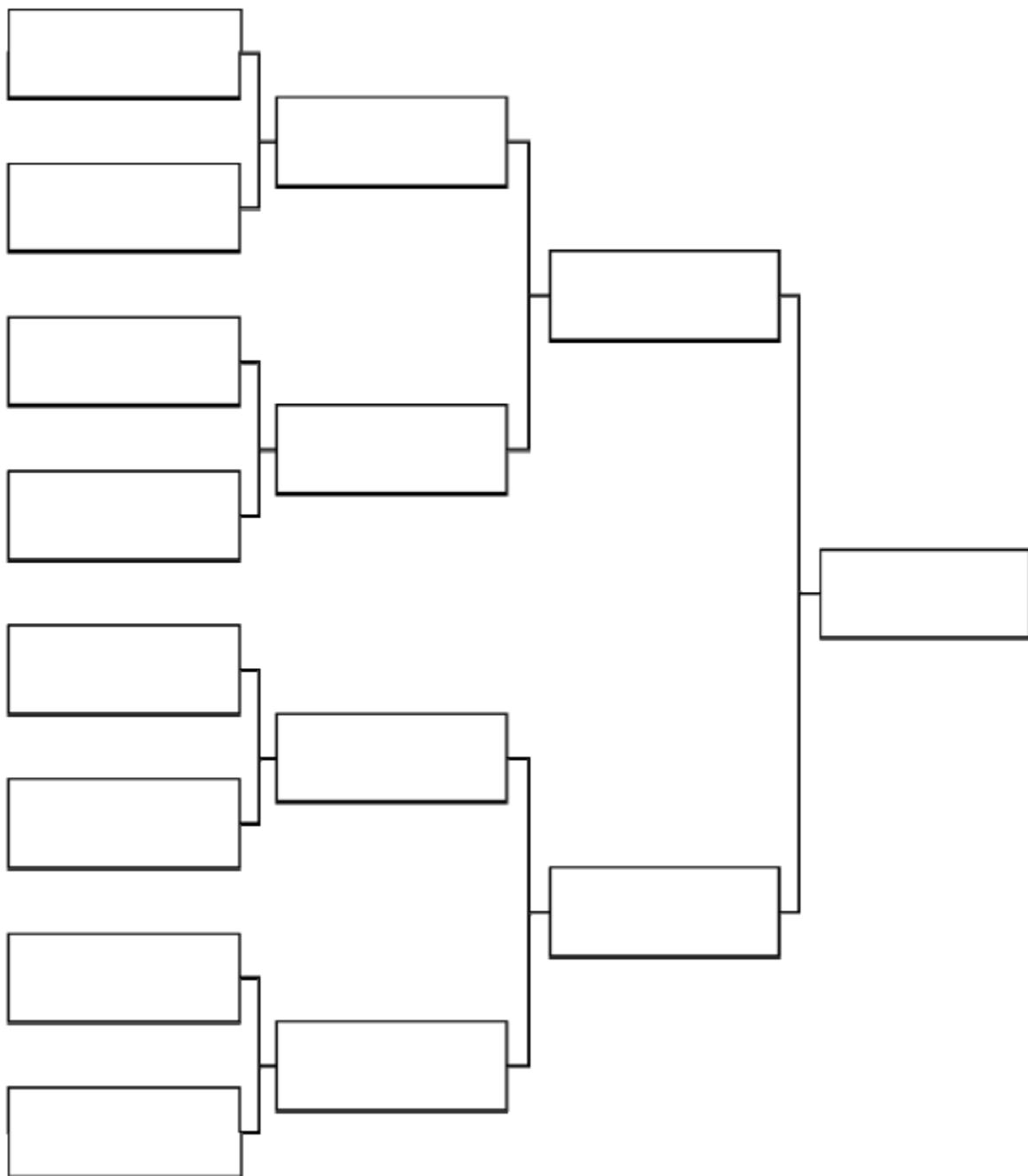


**SCORE
KEEPER**





TEECA
**SOUTHWEST REGIONAL
CONTEST PAIRING**





LIVE PRODUCTION CHALLENGE

DESCRIPTION

The TEECA Assembly Line Production is an on-site timed event which assesses a team's ability to identify the most efficient way to assemble a product using a fixed assembly line facility. No tools or pre-production processes are necessary for this event. (Limit One 6-person Team per School)

CHALLENGE

This year's challenge is develop a production line to accurately assemble the new F1 Racer. Each team will be required to establish the fastest method possible to assemble the prescribed number of cars.

TEAM:

Team members **MUST** be members of an affiliated TEECA college and university and must be registered participants at the conference. Each transportation team will consist of 4-6 students, the team may be composed of no more than 40% graduate students. A maximum of one production team may enter from each institution.

PROCEDURES

1. All teams must "check in" at the scheduled event time. Missing the production start time will result in elimination from the contest.
2. Aspects of the specific production system to be developed will occur at the regional contest site. Note: The physical work on the solution for the national contest will be completed on-site. Regional contests may be completed on-site or off- site depending on the challenge.
3. The time will stop when all production items are correctly assembled and correctly placed in the finished product area The winner will be decided based on the fastest completion time.

NOTE: Violation of any of the rules stated above may constitute immediate disqualification. All teams should display a fair and honest effort throughout the event.



TEECA
SOUTHWEST REGIONAL
PHOTOGRAPHY CHALLENGE