Team Engineering Challenge
(Formerly TPS)

2015 - State Contest Materials
SkillsUSA - Wisconsin
Alliant Energy Center, Madison, WI

Special Recognition
TEC-WI Technical Chair: R. Sean Behymer
TEC-WI High School Educational Chair: Jesse Domer
TEC-WI Middle School Educational Chair: Matt Schultz

WAIT to open
until
Contest Chair gives permission
TEAM ENGINEERING CHALLENGE
State & National Guidelines - online

PURPOSE
This contest is designed to evaluate and to recognize outstanding students for excellence and professionalism in the areas of creative and critical thinking skills and the decision making process, to solve a problem. The contest is intended to foster creativity, innovation, team work, and problem solving skills.

GENERAL REGULATIONS

CLOTHING REQUIREMENT
These regulations refer to clothing items that are pictured and described at: www.skillsusastore.org. If you have questions about clothing or other logo items, call 800-401-1560 or 703-956-3723.

For men: Official blazer, jacket or sweater; black dress slacks; white dress shirt; plain black tie with no pattern or SkillsUSA black tie; black socks and black shoes.

For women: Official blazer or jacket; black dress skirt (knee-length) or slacks with business like white, collarless blouse or white blouse with small, plain collar that may not extend onto the lapels of the blazer; black sheer or skin-tone seamless hose and black dress shoes.

Note: Contestants must wear their official contest clothing to the contest orientation meeting.

ELIGIBILITY
This contest is open to active SkillsUSA members. There are two divisions for competition/awards. Middle School TEC consists of members in grades 6-8 and High School TEC consists of members in grades 9-12. If a team consists of a mix between Middle School and High School members, they will be considered a High School Competitive Team. A team consists of 3 students from the same local chapter.

OBSERVER RULE
Observers will be allowed to watch the match providing space is available. No talking or gesturing will be permitted. The event chair or moderator may remove observers and/or close the event to observers for cause.

EQUIPMENT AND MATERIALS
1. Supplied by the technical committee:
   a. All tools, materials, and supplies necessary to solve the contest problem except those items listed under number two below
   i. Such items may include: hack saw, glue guns, cordless drill.
   b. All necessary information and furnishings for judges and technical committee
2. Supplied by the students:
   a. Drawing equipment (team’s choice - for example: ruler, straightedge, t-square, triangle, scale, pencils, pens, compass, etc…)
   b. Safety glasses
   c. Calculator
   d. Scissors
   e. Exacto-knife or equivalent
   f. Coloring / Writing utensils (Markers, Crayons, Colored Pencils, etc)
   i. Paint is not allowed.
   g. Students are not allowed materials that will “add” to their prototype.
      (i.e. tape, glue, paper, staples, paper clips, etc)
   h. Other tools as listed on the contest update page of the national website

Be at the contest area 10 minutes early for your testing timeslot.

Do NOT enter the contest area during testing/judging unless you are let in by a TEC Official
TEAM ENGINEERING CHALLENGE
State & National Guidelines - continued...

CONTEST PROCEDURES
1. Contestants will be identified by number only.
   a. Transportation
   b. Communications
   c. Construction
   d. Manufacturing
   e. Biotechnology
   f. Engineering

2. The contestant's advisor/instructor must attend the mandatory orientation meeting with the contestant.
3. Contestants will not take the skills-related written or Professional Development Test as outlined in the general regulations.
4. Tie Breaker — Tie will be broken by reviewing the Highest score from the team rubrics. If tie is not broken from option a, then option b and c will be looked at in order.
   a. “Solution: Performance”
   b. “Interview: Problem Solving / Team Work”
   c. “Written Test score”

SCOPE OF THE CONTEST

Knowledge Performance
• The contest includes a written test to be taken by all members of the team at the same time.

Skill Performance
• The demonstration is a presentation of an occupational skill accompanied by a clear explanation of the topic through the use of examples, experiments, displays and practical testing operations.

Contest Guidelines
The Team Engineering Challenge contest will allow SkillsUSA members to demonstrate their ability to work together to solve a problem.

1. The challenge will be selected from an area such as, but not limited to:
   a. Transportation
   b. Communications
   c. Construction
   d. Manufacturing
   e. Biotechnology
   f. Engineering

2. The contestant's advisor/instructor must attend the mandatory orientation meeting with the contestant.
3. Contestants will not take the skills-related written or Professional Development Test as outlined in the general regulations.
4. Tie Breaker — Tie will be broken by reviewing the Highest score from the team rubrics. If tie is not broken from option a, then option b and c will be looked at in order.
   a. “Solution: Performance”
   b. “Interview: Problem Solving / Team Work”
   c. “Written Test score”
Contest Description

Your team works for “H2O Upward Bound, Inc.” in Riverton, WI. This new company is trying to make its mark on the world by creating an “above city - river system” with a target audience of recreational users in larger cities. H2O Upward Bound, Inc. has multiple teams working on the project - your task is to create a test device for the prototype stream. This device must travel against a current, a distance of more than 16 feet, under self contained power and floating on the water in under 60 seconds. You have 6 hours for creating your prototype and presentation. If awarded this job, your team could be receiving some hardware.

Objective:

Your team is to:

• Develop a plan for your prototype.
  o Think about materials, effectiveness and your presentation.
  o Include a Budget for your presentation.
• Develop your prototype. Construct, test, improve.
• Develop props, posters, models, etc for use in your presentation…
  o No digital media is to be used in creating or presenting your product line.
• Test your prototype in accordance with the TEC Rubric with the judges.
• Present your prototype in accordance with the TEC Rubric to the judges.

Materials:

Your team is ONLY allowed the building/design materials supplied by the 2015 TEC Contest Committee. (you may use your team supplied scissors, exacto knife, rulers, protractors, calculators, writing and/or coloring utensils and scratch paper. Scratch paper is only for personal team notes).

• Your team received $60 in Plastic Coins to begin today.
  o Teams will NOT get additional coins, lost or stolen - no excuses
  o IF a team is caught trading or stealing coins (or supplies) from another team, they will be disqualified from the 2015 TEC Contest.
• Supplies for everyone are in the TEC Store area and on your “Purchase Sheets”
  o Each supply item has a cost associated with it (per item)
  o Some items have limits on “how many per team allowed.”
• Your team is allowed 3 timeslots to purchase materials at no penalty.
  o Time Slot 1: You have until 5pm today to place your first order!
    □ Any items that have “max/team” listed – you cannot buy more than that.
  o Time Slots 2 & 3: after all 1st orders are received, you may order anytime
    □ “Max/Team” items no longer matter. If we have extras of anything and you want to purchase them, you can. (First come – First Serve)
  o Time Slots 4 - 8: A 10 point penalty will be applied to your TEC Score for each trip after 3 to the TEC Store.
• Placing Orders for supplies
  o 1 team member from each team should be designated for ordering.
  o Step 1: Complete your order form
    □ (White for TimeSlot 1 / Yellow for TimeSlots 2-3 / Green for TimeSlots 4-8)
  o Step 2: Bring your order form to the TEC Store and wait in line.
  o Step 3: Follow the TEC Store Clerk in fulfilling your order.
  o Step 4: Verify your order is correct as it is being fulfilled & Sign order sheet.
    □ Have Patience for TimeSlot1: We have 100+ orders to fill in 1 hour
  o Step 5: Pay for your order using the TEC Plastic Money
  o Step 6: Take your supplies to your table - they are yours to construct with.
SAFETY!!!

- Teams will be using hand tools (Exacto knives, Scissors, Hot Glue Guns, Hand Saws).
  - BE CAREFUL and TAKE YOUR TIME
- Be careful when around other contestants not to distract them or injure yourself.
- Horseplay will not be tolerated - act professionally.

2015 TEC Timeline

**Tuesday:**
- 3:00pm . . . Contest Welcome
- 3:10pm . . . Team Written Test - Problem Solving
- 3:30pm . . . Collect Written Tests
- 3:40pm . . . Teams begin worktime
- 4:00pm . . . TEC Store Opens
- 5:00pm . . . Round 1 Purchases done (Limited supply)
  - Following completion of Round 1 - Round 2, 3, 4... begins
  - First-come, First-serve on Rounds 2, 3, 4...
- 6:00pm . . . Team worktime ends for Day 1. (Projects STAY in contest area)

**Wednesday:**
- 8:00am . . . Contestant Worktime in contest area
- 11:30am . . . Lunch delivered to TEC area for contestants
- 11:50am . . . Contestant Worktime ENDS
  - Clean up area & leave TEC Room until Testing timeslot
- 12:10pm . . . Clear contest area - no competitors
- 12:30pm . . . Judging Begins - Round 1
- 5:15pm . . . HS Callbacks Posted outside TEC Door & Online
- 6:00pm . . . Judging Begins - Round 2
- 7:15pm . . . Judging Ends
- 7:30pm . . . Teams may pick up their supplies, materials, prototypes, etc
  - TEC Contest time done - waiting for awards ceremony Thursday :)

**Thursday:**
- AWARDS CEREMONY :)
Testing

- Your team will have 2 minutes to perform your test.
  - When brought into the contest area, gather your supplies from your table and return to the entry awaiting your turn to test.
  - When brought to test area – place your prototype on test pad.
  - Your prototype must fit within the test area.
  - When ready to test, and judges give the go, place your device in the trough at/ behind the starting line and turn it on or engage the forward propulsion.
  - Your 1 minute time starts when you let go of your device.
  - Upon starting your device, no team member may touch it or affect it anymore.
  - The judges will observe your device and record the furthest distance reached.
  - If your device turns around, no negative points will be assigned.
  - Your test ends when the device reaches the finish line or time runs out.
  - Each team gets ONLY ONE test run.
  - Your time limit will be held to 2 minutes – keep on task.

- Upon completion of your test, your team will be directed to a Round 1 Judging Table.

Presentation: Round 1 (4 minutes)

- Your team will have the first TWO MINUTES for:
  - Sales Pitch of your solution to the judges
  - In this time period YOU will be talking to the judges about why your solution should be the best...
  - You may use props, posters, models, etc.
  - Your team WILL BE CUT OFF at 120 seconds.

- Your team will have an additional TWO MINUTES to:
  - Explain how your team came to the conclusion of the final product line.
  - This is in accordance with the “Interview” section of the TEC Rubric.
  - You may use props, posters, models, etc.
  - Your team WILL BE CUT OFF at 120 seconds.

- Your team will have a final THREE MINUTES for Q&A from the judges.
  - Your team will be asked to answer random questions from the judges.
  - Questions will be about your team work process.
  - You may use props, posters, models, etc.
  - Your team WILL BE CUT OFF at 120 seconds.

CALL-BACK Presentations: Round 2 - High School Only (6 minutes)

- Each group of judges will select the TOP 2-3 groups to come back for a second round of presentations.
  - There will be more than one group of judges in Round 1.
  - Round 2 will be in front of various judges from Round 1 (1 from each group)
  - Round 2 will be identical to the previous presentations in Round 1.
  - You will be presenting in front of more judges.