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# OFFICIAL RULES FOR THE 2018 TULSA ENGINEERING CHALLENGE

## WACKY WONDER WORKS COMPETITION

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### FOREWORD

This contest is limited to two (2) team entries per division per school. Each school planning to attend the Tulsa Engineering Challenge (TECh) MUST complete the TECh Registration process.

Additionally, schools participating in the Wacky Wonder Works Contest **must** complete the Project Description Form and present it to the judges at the Wacky Wonder Works competition station.

Prizes will be awarded to entries from registered schools only (entries from unregistered schools will NOT be eligible for awards).

**NOTE: Only Registered Entries accompanied by a Project Description Form will be permitted to compete. This form is located at the back of these rules.**

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### DESIGN STATEMENT & OBJECTIVE

Design and build the most complicated device to achieve a simple objective, which is: Launch a regulation size ping pong ball at least five feet away from its original location. A bonus of 25 points will be given if the ball lands in a bucket that has a rim diameter of 15 inches and who's rim sits 10 inches above the table. The contestants must designate the location of the bucket before the first official attempt begins.

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### EXAMPLE:

We provide this example solely to give students an idea of the type of project we anticipate. A steel ball rolls down a channel then trips a lever, which activates another action, etc., and on and on until the final action would achieve the objective.

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### MATERIALS

All materials are to be provided by the contestants with the exception of the bucket for bonus points. However, the following items are NOT permitted: liquids, compressed gasses (including balloons), caustic substances, flames, aerosol sprays, live animals, commercially powered AC devices, or any materials that could be construed as unsafe to humans or damaging to the contest area. Materials utilized may not leave any residue on the table or surrounding area.

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## **RULES**

Prior to competition, create a mechanical device (designed and assembled entirely by students) that will achieve the objective. Electrical applications are allowed; however, only dry cell batteries, not exceeding a total output of 6 volts, are permitted. A self contained, self powered device, such as a battery powered electric screw driver, may be used as a power source for the project. In such a case, the contestants must have previously verified and be willing to certify that the battery voltage is no more than 6 volts. In no case will a 120 volt A.C. connection be allowed. In no case will a wet cell (such as a car battery) be allowed.

The device must be self-contained and will be setup on a table provided at the competition site. Table dimensions will be at least two feet (2') wide by six feet (6') in length. The device must not be taller than 36 inches (36") in height, and no portion of the device can extend beyond or below the tabletop.

A maximum of two students will be allowed in the contest area to set up and operate the device. Twenty minutes will be allowed for students to set up, adjust and test-run their entry. A maximum of five minutes will be allowed for the official attempt. Once the device has been activated, students cannot touch any part of their device until completion of the objective. However, if the objective is not completed, a second run may be initiated. A maximum of only one completed run will be allowed, and a maximum of only one restart will be allowed. If the objective is reached in the initial run, a second run will not be allowed. If a restart is attempted, the second run must be completed within the initial five (5) minutes allowed per above.

Repeated Actions: In certain cases, actions may be repeated (i.e., several balls rolling down a ramp, each ball operating a lever or gate) or action sequences may be repeated (i.e., several strings of dominoes separated by independent action items). A repeated action or repeated action sequence will only be counted the initial three times. Subsequent repeats of this action or action sequence will not be scored, but will be allowed.

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## **PROCEDURE, JUDGING & SCORING**

Prior to the competition, judges will inspect the device to determine dimension limits and if materials used are within the rules. Judges will also review the actions (listed on the Project Description Form) with the students. When instructed by the judges, contestants will activate and start their device. NOTE: All materials, including the ping pong ball will be provided by the student team as part of the device.

One (1) point will be awarded for EACH different and distinctive action. Only actions which are different, distinctive and visible will be scored (e.g., a ball rolling down a channel and just turning a corner would only be counted as one action, or a string of dominoes knocked down would be counted as one action). See ABOVE Rule regarding repeated actions or repeated action sequences. Each action eligible for point consideration must be listed on a separate line on the Project Description Form. Every action must have an effect on another action and contribute to achieving the objective; in order to be counted as an action. Only projects completing the final objective will be scored.

Additional points will be awarded at each competition level for the use of the following machines:

Gears and screws: 3 points for each time each machine is used up to the first 3 times. (All competition levels).

Levers and pulleys: 3 points Each time each machine is used up to the first 3 uses. (Elementary School Level only).

Bonus: A bonus of 25 points will be given if the ball lands in a bucket that has a rim diameter of 15 inches and who's rim sits 10 inches above the table. The contestants must designate the location of the bucket before the first official attempt begins.

The judges will have the authority to interpret all rules. The judges may instigate any additional rules at the time of judging for the purpose of safety. Any challenge in the rules must be made while the challenged project is still setup and in the competition area. Do not disassemble the project until instructed to do so by the judges.

## **Disqualification**

In the event that a project does not reach the stated goal, is in violation of the rules, or is successfully challenged by another team, the project will be disqualified and not scored. Every effort will be made to make the disqualification notification before the project is disassembled; however, this may not always be possible. The judges reserve the right to disqualify a project after review. If a project is disqualified, it will not be scored. Decision of the judges, during all phases of the competition, is FINAL.

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## **GENERAL**

The contest is limited to TWO (2) entries per division per school. The entry may be an individual or team project of two to four students.

**Registration will be done via the TECh web page which can be accessed through [www.tulsaengineer.org](http://www.tulsaengineer.org).** Questions? E-mail: [tulsatechchallenge@gmail.com](mailto:tulsatechchallenge@gmail.com)

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## **PRIZES**

Prizes will be awarded for three divisions as follows: Upper Division (9<sup>th</sup> thru 12<sup>th</sup>), Middle Division (7<sup>th</sup> thru 8<sup>th</sup>), and Lower Division (6<sup>th</sup> grade and under). In the event of a tie, prizes will be equally distributed between winning entries.

First Place:	\$100 cash and \$25 cash for their classroom.
Second Place:	\$75 cash and \$25 cash for their classroom.
Third Place:	\$50 cash and \$25 cash for their classroom.

Any cash prizes will be awarded by a bank check and issued to the teacher/school listed on the registration to be cashed and distributed to the winning student(s). We will mail a check to the address listed on the registration within a few weeks of the competition. If you do not receive your prize or certificates within a few weeks, please email [info@tulsaengineer.org](mailto:info@tulsaengineer.org) with your team name, school, and competition won.

# 2018 TULSA ENGINEERING CHALLENGE

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## PROJECT DESCRIPTION FORM

### WACKY WONDER WORKS COMPETITION

PLEASE TYPE OR PRINT CLEARLY AND LEGIBLY

Name of School: \_\_\_\_\_

School Address, City, Zip: \_\_\_\_\_

Sponsoring Teacher: \_\_\_\_\_

Telephone: School (\_\_\_\_) \_\_\_\_\_

Teacher (\_\_\_\_) \_\_\_\_\_

Teacher E-mail Address: \_\_\_\_\_

Designated Classroom: \_\_\_\_\_

Names of students who will operate the project:

(1) \_\_\_\_\_ (2) \_\_\_\_\_

We hereby certify that the Wacky Wonder Works Project was designed and built **ONLY** by students from the school listed above

\_\_\_\_\_  
Signature of Student #1 Above

\_\_\_\_\_  
Signature of Student #2 Above

Activity Description in Order of Actions (Print or Type):

(1) \_\_\_\_\_

(2) \_\_\_\_\_

(3) \_\_\_\_\_

(4) \_\_\_\_\_

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(6) \_\_\_\_\_

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## PROJECT DESCRIPTION FORM

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(If needed, attach additional pages, numbered per the above format)