

2017 RoboPlay Challenge Competition

Call for Participation

January 16 - Information put on the web site
March 1, 2017 – Registration open
April 14, 2017 - Registration deadline
April 28, 2017 - Deadline for finalizing team member participants
Parent consent and media release form due
Registration fees due
May 20, 2017 - C-STEM Day

The RoboPlay Challenge Competition is designed for students to showcase their real-world problem solving skills in a competitive environment. This competition simulates an unexpected problem occurring at a remote location such as a space station or planetary habitat, where a robotic solution must be quickly developed and deployed, using only existing resources. The competition challenges students to creatively use modular robots and accessories to complete various tasks. The competition arena and specific challenge will be kept secret until the day of the competition. Using their math, programming, and problem solving skills, students try to most efficiently get the highest score for each task.

Divisions:

- **Level 1** - Students in grades 5-8
 - Students in grades 9-14:*
- **Level 2** – All students on the team are currently enrolled in or the highest level they have completed: Algebra 1 / Geometry / Integrated Math 1 / Integrated Math 2
- **Level 3** – One or more student on the team is currently enrolled in or has completed: Algebra 2 / Integrated Math 3 or above




* Teachers, please encourage your students to create teams of the appropriate level, as Level 3 challenges involve significantly more advanced mathematical requirements. A single Algebra 2 / Integrated Math 3 student may not be sufficient to allow an otherwise Level 2 team to compete effectively.







Rules for Challenge Competition:

- Teams:
 - All team members must be enrolled in a K-14 school.
 - Each team must have 3 – 5 participants.
 - Each teacher can sponsor up to 2 teams.
 - Sponsoring teacher must be present on the day of competition
 - Registration fee:

Phone: (530) 752-9082
Email: cday@c-stem.ucdavis.edu

- Basic - \$250 per team (includes registration costs, competition booklets, name tags, a vinyl 2016 RoboPlay Competition mat, and miscellaneous supplies)
- Complete - \$320 per team (includes all items included in the basic fee, plus 5 T-shirts)
- All team members will receive certificates of participation.
- Equipment:
 - The only robotic hardware qualified for participation is the Linkbot, a reconfigurable modular robot available from Barobo, Inc.
 - Each team must bring its own robots and accessories for the competition

| Part | Image | Quantity |
|--------------------------------|---|----------|
| Linkbot-I |  | 4 |
| Linkbot-L |  | 1 |
| Linkbot-I, Linkbot-L or dongle |  | 1 |
| Snap Connector |  | 15 |
| Caster |  | 4 |
| 3.5" Wheel (new) |  | 8 |

| Part | Image | Quantity |
|------------------|---|----------|
| 4" Wheels (new) |  | 2 |
| Bridge Connector |  | 2 |
| Gripper |  | 1 |
| Cube Connector |  | 1 |
| Soccer Scoop |  | 2 |
| Hacky Sack |  | 1 |

| Recommended/Necessary Accessories |
|---|
| Protractor |
| Writing Utensils |
| Compass |
| Timer/Stopwatch |
| String |
| USB flash drives |
| Ruler & Measuring Tape (min. 8 feet) |
| Extension Cord |
| Multiple port USB Charger (Qty: 2) (Skiva PowerFlow recommended) |

- **Each team must use the latest wheels with rubber band.** Therefore, all participants have the same equipment. You may order four accessory packs from Barobo at <https://store.barobo.com/14-accessories>.
 - Each team is allowed to bring one extra Linkbot as a backup, but no more than 5 Linkbots may be used at one time in the competition arena.
 - Teams may not use custom-made parts.
 - Each team must use their own laptops. Multiple teams may not share laptops. Teams may bring as many laptops as they have students to the practice area (pit), but only one laptop may be brought into the competition arena at a time.
 - Use of other electronics during the competition, including other computers, calculators, cell phones, tablets, or any other computing device is not allowed.
 - There will be no internet access during the competition. If a team is caught using the internet during the competition, the team will be disqualified.

- **Software / Programming:**
 - All challenge tasks must be completed using a computer program (no tilt drive or copycat mode allowed).
 - Programs for controlling the robots must be written in Ch and run in ChIDE from SoftIntegration, Inc.
 - Teams may not interact with their running program unless explicitly required in the challenge text. Some challenges will require user input at startup.
 - Teams may not share the computer programs they create with any other team. This will be considered cheating and both teams will be disqualified.

- **General Competition Information:**
 - The Competition will last six hours split into two portions.
 - Unscored: The first three hours are for students to build and program their robots to complete the challenges presented at the start of the competition.
 - Scored: The last three hours are for teams to compete against each other to determine the winners of the Competition.
 - Once the competition has begun, the teams may speak to the Judges for clarification on problems, but should not talk to anyone else outside of their team.

- You have 10+ challenges to do in any order you like. Successful completion of each challenge earns your team points. The goal is to get as many points as possible.
- **Unscored Practice Information**
 - All teams will be provided a designated practice area (pit) to place their own 2017 RoboPlay practice mat.
 - You will be given two 17-minute practice periods to practice on the official 2017 RoboPlay Competition Board between 10am and noon.
 - Each 17 minute period starts and ends when specified in the schedule. You will not be given 17 minutes from when you arrive. Please be prompt.
- **Scored Competition Information**
 - You will be given three 17-minute competition periods to compete on the official RoboPlay Competition Board between 12:45pm and 3:45pm.
 - In between each team's run, there will be a three minute passing period.
 - No robots may be run on the competition board during the three minute passing period.
 - Any challenge that is on-going when your 17 minute period ends will be immediately stopped and points will be calculated.
 - You are allowed to attempt each challenge as many times as you like within the allotted competition time.
 - If you attempt a challenge multiple times, only the points from the highest scoring run will be kept.
 - Challenges may not be "chained together" meaning you cannot do two challenges simultaneously with the same program.
 - Teams are responsible for setting up the competition board for each run of each challenge, as specified in the challenge text.
 - Teams may not use more than four I-bots and two L-bots simultaneously, nor have more than five active Linkbots at a time.
- **Challenge Competition Awards:**
 - Awards will be given to the first, second, and third place winners for each respective division at each of the C-STEM Day Locations
 - Regional awards will not be issued in divisions with fewer than 4 competing teams
 - Statewide awards will also be awarded to the first, second, and third place winners for each of the divisions
 - Three additional Judges Awards will also be decided by the judges for each division at each C-STEM Day location:
 - Perseverance Award – This award goes to the team that improvises and overcomes a difficult situation while still managing to maintain a high level of performance.

- Spirit Award– This award celebrates a team that displays extraordinary enthusiasm and spirit.
- Teamwork Award– This award recognizes a team that fluidly works together with strong communication, tasks delegation, and excellent time management.

Organizer

UC Davis Center for Integrated Computing and STEM Education (C-STEM)

Co-organizer

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