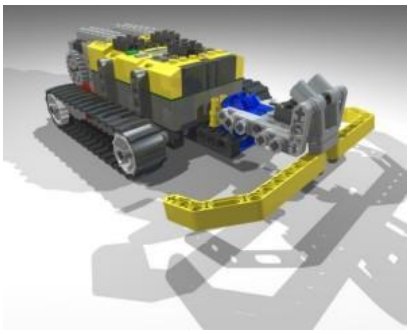
Grade 4-6 Lego Robotics Challenge

Halton Skills Competition
Robert Bateman High School
Tuesday April 5, 2016
Competition Coordinators: Deb Mills and Bill Brown
(last edited Dec. 23, 2015)



Purpose of the Contest:

To engage students in the world of Lego Robotics and to allow a team of four to demonstrate their skills.

Overview:

The competition will consist of a series of seven tasks. Tasks are designed to provide a range of challenge levels. Successful completion of a more difficult task will earn a team more points than completion of an easier task. Teams will choose which tasks to complete, and how long they will work on each task before moving on to another. It is suggested that prior to the competition, coaches discuss with their teams how they will decide which tasks to attempt and how long to work on a task before moving on to the next one. All tasks will be available to be worked on at the same time.

A description of the actual tasks will be provided on the day of the competition. Robots will need to use light sensors or touch sensors or a combination of both. Teams will benefit from having experience with using gears to control the speed of their robot.

Specs of Contest:

1. Each team must have four members who are in Grades 4, 5 or 6 - may be a mixture of grades.
2. Only Lego parts may be used in the building of the robot. No wood, glue, tape, etc.
3. Each team will be allowed to work with only one RCX/NXT/EV3 at a time. Teams are encouraged to bring an extra RCX, NXT or EV3 if available in case of hardware problems. Teams are not limited in the number of additional Lego pieces they can bring and use. Any of the three types (RCX/NXT/EV3) of Lego Robotics kits may be used.
4. Pre-built robots may not be brought to the competition. Kits are to be disassembled so that all teams are building their robots at the competition. Students may bring saved programming files with them to use on the day of the competition.
5. Students are required to keep their work areas neat and tidy at all times.
6. There will be two designated scoring times set out during the day: one before lunch and one at the end of the day.
7. Each team is limited to two attempts at any one challenge, with the highest score being counted for the challenge. Teams will have time to practice the tasks prior to the scoring times.
8. Each team will carry their score card with them as they move from task to task.
9. **POSTER**: Each team should choose a team name before they arrive and create a poster which identifies their team name but not their school name. This is worth 10 points - so make sure you bring one!

Ask us if you get stuck!

Equipment and Materials

1. A computer pre-loaded with either Robolab, MindStorms or EV3 software. Please note:
    a. most board computers with the elementary standard image will already have Robolab software installed. Robolab 2.5.4 will program the RCX. Robolab 2.9.4 with the proper drivers will program both the RCX and NXT.
    b. Mindstorms is not board-supported software and will not be installed on standard image computers, but may be used in this competition.
    c. Elementary teachers may borrow a Robolab 2.9 installation disk through The Education Library for installation on teacher personal computers.
    d. EV3 software is required for programming EV3 kits.
    e. **Please check that your computer has the correct software before you come to the competition.**
    f. If your machine has deepfreeze contact IT to have it disabled for the competition and that you can log onto the machine independent of the network

2. Lego RCX, NXT or EV3 kit - no parts to be assembled prior to the start of the competition.

3. Extra Batteries and/or a battery charger.

4. Any extra Lego parts you think you might need, including extra motors and sensors.

5. A Power Bar and extension cord.

Important Points To Remember

1. Teams of four from Grade 4, 5 and/or 6
2. No pre-built robot
3. Neat and tidy work area
4. **Create and bring a poster (10 MARKS)**
5. No school names on shirts, posters etc.
6. Teams will choose from multiple challenges
7. Points will be awarded for team work

Competition Agenda

8:30-9:00 Registration
9:00-9:15 Introductions and Orientation
9:15-10:00 Teams begin working on challenges. Judging of posters. There will be ongoing judging of teamwork, co-operation and organization of work space between 9:15 am and 3:00 pm.
10:00-11:30 Teams compete at chosen challenges
11:30-12:15 Lunch
12:15-2:45 Teams continue to compete on chosen challenges
2:45-3:00 Tallying of scores - teams pack up their equipment
3:00-3:15 Closing ceremony - top 3 teams will be announced and will be asked to stay for the awards ceremony

Allocation of Points

Tasks (maximum of 7 tasks)	75 points
Poster	10 points
Teamwork, co-operation, organization	15 points
Total	**100** points