



## DSBN Elementary Robolab Robotics CHALLENGE 2009

**CHAIR:** : Leonard Aylward

[Leonard.Aylward@dsbn.edu.on.ca](mailto:Leonard.Aylward@dsbn.edu.on.ca)

### **PURPOSE OF THE CONTEST:**

Co-ed teams of four students each from schools across the DSBN will have an opportunity to compete with one another in a friendly environment to demonstrate their creative, collaborative and problem-solving skills in solving an open-ended challenge.

### **EVENT DETAILS:**

Date: February 20<sup>th</sup>, 2009

Time: 9:00 - 3:45

Location: Brock University ( tentative)

### **SKILLS AND KNOWLEDGE TO BE TESTED:**

The Robotics Challenge will have a rubric scoring system based on points. Points are awarded as the robot successfully meets/completes certain performance criterion.

Overall team score will be the sum of the points awarded for each of the three events: **the competition, the quiz and the poster contest.**

Judges will oversee the three events of the competition plus the quiz and poster components of the competition.

Teams are expected to:

- neatly assemble a successful solution to the challenge within the time constraints
- demonstrate mathematical, scientific and technological knowledge
- demonstrate sound design, construction, and programming principles
- demonstrate an efficient use of materials
- demonstrate best practices in using materials, computer hardware and software
- model a collaborative distribution of tasks
- follow safe working practices, and

organize and present an informative solution to the challenge

### **SAFETY REQUIREMENTS:**

Competitors are required to follow all industry safety standards during the competition.

### **EQUIPMENT, MATERIALS, TOOLS AND SUPPLIES:**

#### **Equipment Supplied by the Contest Coordinator:**

The following materials will be provided at the contest site.

1. A competition playing surface will be provided for official competition. No other equipment will be allowed in the competition area.
2. Copies of Robolab 2.5.4 and NXT software will be available at the contest site.
3. Contest description including poster contest and robotics test
4. Rubrics for each component of the competition
5. Markers, Pencil crayons, rulers and paper will be provided for the poster competition
6. A limited number of spare parts will be available

#### **Equipment Supplied by the Competitor:**

Teams are required to bring, and should be familiar with the use of the following systems, processes, and resources.

Lego Robolab or NXT kit, including software suitable for Windows XP, batteries, Lego parts, etc. Kits should include at least three (3) motors and 1 light sensor.

Lego Robolab or Mindstorms construction and programming manuals, etc.

Disks to make backups of your programming solutions

Extra sensors or motors might be required depending on the team's approach to the challenge

5. Computer ( preferable laptop) for programming. ( Teams must supply their own, if your school does not have 1 available please contact Media Services))

note: if your school does not have a NXT kit available but you would like to use one please contact your Design technology Center

### **CLOTHING REQUIREMENTS:**

Casual business attire

## **PROJECT AND COMPETITION EXPECTATIONS**

The theme for this year's Robotics Challenge is "Technology and Nature". It will consist of designing, constructing, and programming an autonomous Lego robot to accomplish specific tasks. Teams will be required to complete a skill testing quiz on Robotics and its concepts, and design a hand drawn poster to promote their team and the event.

Teams should come to the competition with their NXT kits, ready to construct and program their robot to solve the challenge. **Teams are permitted to bring an assembled drive train. Drive trains should be controllable, sturdy and have room for additional parts and sensors to be added.** The tasks and conditions of the challenge will remain hidden until competition day.

Teams are expected to:

- neatly assemble a successful solution to the challenge within the time constraints
- demonstrate mathematical, scientific and technological knowledge
- demonstrate sound design, construction, and programming principles
- demonstrate an efficient use of materials
- demonstrate best practices in using materials, computer hardware and software
- model a collaborative distribution of tasks
- follow safe working practices, and
- organize and present an informative solution to the challenge

## **JUDGING CRITERIA:**

- Task 75%
- Test 10%
- Poster 15%
- Total 100%.

**ENTRY:**

Students must register on line at [www.dsbn.edu.on.ca/TechEd](http://www.dsbn.edu.on.ca/TechEd). With all the required information requested in order to participate. Teachers should forward a list of competitors participating from their school to the contest coordinator 5 days prior to the competition.

**TRANSPORTATION:**

Students are responsible for their own transportation.

**TEACHER'S ROLE:**

Instructors are expected to acquaint their student participants with all of the enclosed guidelines. Teachers may accompany their students or visit any time during the competition, but may not assist the competitors during the challenge.

**SPECIAL INSTRUCTIONS OR GUIDELINES:**

Lunch ( Pizza and Pop) will be provided for all competition at the competition. If your team has any special dietary requirements please notify the coordinator 5 days prior to the competition.

**COMPETITION AGENDA:**

**8:30 registration**

**9:00 challenge**

**2:30 judging**