

## Technology Look Fors

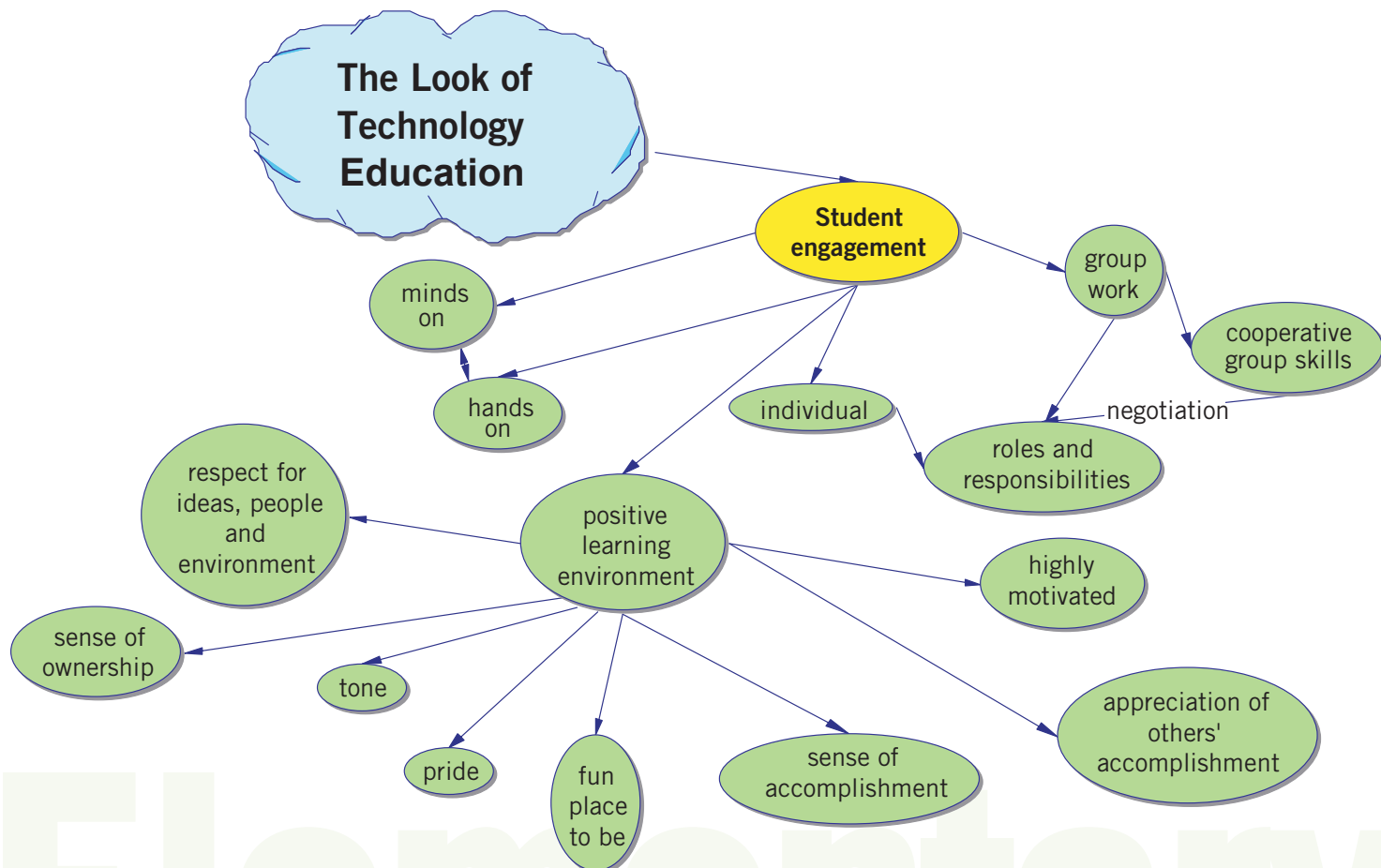
Have you ever asked yourself the question, "What should I see happening in a quality technology classroom?" In our last elementary newsletter, we shared with you our answer to this question in the form of the following visual diagram.

This integrated outline is intended to be a means to show non-technology trained educators what to look for to indicate that Technology Education, at the elementary level, is happening in a classroom. These indicators could also be used as a starting point for program planning.

The five key components which should be visible in a technology classroom would include: Risk Management, Technological process/Problem Solving, Student Engagement, Concepts and Knowledge, and Communications. Each of these top-level components can be broken down into more specific concepts.

Last issue the Technological Process/Problem Solving look fors were illustrated. This month the Student Engagement look fors have been highlighted.

When you walk into a classroom where students are actively participating in a technology program, you will see students using critical and creative thinking skills to solve open-ended activities. You will hear excitement as students work cooperatively on common goals. You will also notice students using tools and concrete materials to solve technological problems in a variety of ways. Hands-on activities and flexible grouping address a range of learning styles and multiple intelligences, thereby enabling success for all learners.



## Welcome to the OCTE conference.

As the chair of OCTE I would like to welcome everyone to the Conference. This is an exciting time to be a technology teacher in Ontario. With the introduction of specialist high skills majors, dual credits and a revised curriculum which allows for more specialization, technological education is poised to take a leadership position in program design and delivery in every secondary school in Ontario.

As a teacher involved with a dual credit pilot, working with a community college and several secondary schools has definite challenges but the opportunities for students to start apprenticeships early, complete college courses, and have access to college facilities is very exciting. Hopefully many of the lessons learned through all the pilot programs across the province will enable the Ministry to develop programs that enable more students to be successful in technical careers. Please use the opportunities at this conference to learn more about these innovative and exciting programs.

As you attend the conference please take time to engage in professional dialogue with your colleagues from other schools and boards. It is often through such dialogue that teachers learn how to implement the many great opportunities presented in the excellent workshops. My challenge to you is that you take away one new idea, resource, project or teaching strategy and work with it for the next year. Then bring your experience back next year and share through a workshop or a presentation at the curriculum fair.

I would like to take this opportunity to thank all the vendors and corporate partners. From sponsorship of events, to door prizes and workshops, our business partners add excitement, fun and incredible learning value to the conference. Many vendors return year after year. Relationships have developed that enable us to count them as friends. Please be sure to spend some time in the vendors' area.

Please take the time to thank all the conference organizers and workshop presenters. As volunteers they have given of their time and expertise to make this conference meaningful and relevant.

Enjoy the conference!

Art Niezen, OCTE Chair  
Executive Director Georgina  
Trades Training Inc. (GTTI)  
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Art Niezen, OCTE Chair

### OCTE Mission:

*Together we will establish a strong, consistent, accountable and sustainable technological education for all students in Ontario.*

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## F1 in Schools Technology Challenge.

The F1 in Schools Technology Challenge is pleased to welcome support from the Canadian Motorsport Hall of Fame and Legendary Motor Car located in Halton Hills Ontario. **The F1 in Schools Competition will be held on June 6th at the Legendary Motor Car site.** Students (and teachers) will be truly amazed at what is in store for them with a visit to this facility. Registration details and information is available from Paul Riddell (paul@electrolab.ca) or Joe Hogan (joe.hogan@rogers.com)

CONGRATULATIONS ! to the 2006 F1 winning team from Woburn C.I.( Toronto DSB) for their participation in the World Championship Formula 1 Technology Challenge held in Australia in March 2007. The Canadian team was recognized with the Newcomer Award and had an exceptional international educational experience.

The F1 in Schools Technology Challenge is contested in 20 countries around the world with 6 million students participating. This unique student challenge in which students from ages 11-18 use CAD/CAM software to design, build and test a model CO2 powered balsa wood F1 car is in its third year of World Championship competition. OCTE is proud to be a leader in developing partners and this program for Technological Education students in Ontario schools.

Looking for a new, exciting and reasonable cost challenge for your Technological Education students...check out these websites and ask who will represent Canada at the 2008 World Championship in Malaysia....?

**T.E.A.M.-Work Canada** [www.team-work.ca](http://www.team-work.ca)  
**United Kingdom** [www.f1inschools.co.uk](http://www.f1inschools.co.uk)  
**USA** [www.f1inschools.us](http://www.f1inschools.us)  
**International** [www.f1inschools.com](http://www.f1inschools.com)



## Software Review

"Necessity is the Mother of Invention"

With over 850 students enrolled in 31 OYAP and School to Career programs located across 12 schools through-out the Halton region, the need for a robust student tracking software system had become necessary. With funds provided by the Ministry of Training, Colleges and Universities (MTCU) a new software system was developed by the Halton CDSB IT department has been operational since October 2006. OnSORTS (On Line Student OYAP Registration & Tracking System) has been used to inform, register, track and communicate with students from both Halton Boards interested in OYAP and other School to Career programs. Since the system launch, over 1000 students have accessed this system and more than 130 teachers, guidance counsellors and administrators use OnSORTS on a daily basis.

OnSORTS is a 24/7 web-enabled system for the collection and management of OYAP and related student demographic information at the elemental and aggregate levels. OnSORTS incorporates the use of the Ontario Education Number (OEN) allowing for a unique student log on and security authentication. The functionality and accountability that this program delivers is two fold in design. First, OnSORTS provides information management tools for school and board-based planning and decision making regarding OYAP program availability, student registrations and staff scheduling for both Halton Boards. Second, the demographic information collected at this stage is extracted and exported to the MTCU and Job Connect agencies for their respective data tracking purposes. OnSORTS is designed to automatically contact students via their email every six, 12, 18 months and request student information updates. OnSORTS can be accessed by all authorized users at [www.onsorts.ca](http://www.onsorts.ca)

Recently, additional funding has been received from the MTCU for further enhancements to OnSORTS in anticipation of a provincial roll out in the fall of 2007. Members of the OnSORTS team include: software developers, Paulo Silva, Ryan Dick and Melba Montoya from the Halton Catholic DSB. Consulting services provided by David Graves, Wayne Mason (retired), and Barb Finan of the Halton DSB and project lead, Robert De Rubeis, Curriculum Consultant - Technological Studies of the Halton CDSB. A special thank you goes out to Wayne Elshof, Director of IT Services for his support with this initiative.

The OnSORTS team has been tentatively scheduled to give an over view of this new software product at the ECNO conference [www.ecno.org](http://www.ecno.org) at the Nottawasaga Inn in Alliston on June 3 -5.



## Kindergarten Technology Education Skill Builders

### Prior Knowledge and Skills

Understanding Need for Safety Rules  
 Co-operative Group Skills (including sharing materials, helping each other use tools and materials appropriately)  
 Attentive Listening

### Task Description

#### Skill Builder 1 - Playing With Junk

Students explore using found materials and tools, including cutting (with scissors), punching (with paper punch), and fastening (with glue, tape, split-pin fasteners, and staples). Students share what they made (e.g., talk about it with teacher, small group, or whole class)

#### Skill Builder 2 - Gingerbread Man Raft or Boat

Using materials and tools from Skillbuilder 1, students make a raft or boat for the Gingerbread Man to get away from the fox. Students must use at least two different materials fastened together. They test their raft or boat at the water table. Students draw what they made on recording sheet provided by teacher.

### Note

It is important to gather information (assess), and provide timely, helpful, and specific feedback, on students' work with Skill Builders, as opposed to judging (evaluating) all of the work. Teachers should use their own discretion as to which aspects of the work to evaluate (based on Overall Expectations).

### Resources/Materials/Equipment

Small boxes, toilet paper tubes, yarn, string, paper scraps, styrofoam plates, yogurt cups, egg cartons, buttons, straws, popsicle sticks, plasticene, scissors, tape, glue stick, regular glue, split-pin fasteners, staples, water table



### Assessment and Evaluation

#### Evidence of Student Learning

- Cutting
- Fastening
- Explanation of what they made

#### Criteria

- Cuts safely
- Clean cuts and fastening
- Clear explanation

#### Evidence of Student Learning

- Raft or boat

#### Criteria

- Raft or boat floats and supports weight of plasticene Gingerbread Man

## Design and Make a Candle Carousel - Grade 7

Energy & Control - Thermal Energy & Heat Technology  
Structures & Mechanisms - Structural Strength & Stability

### Introduction

This multi-step project is an excellent way to introduce students to sheet metal fabrication and fastening techniques. While such an activity is ideally done in a metalworking facility, the cutting, bending, and soldering of tinplate can be done with just a few basic hand tools.

### Prior Knowledge and Skills

- How shape, spin, and foundations affect a structure's stability
- How the position of the centre of gravity determines whether something stands or falls
- Three methods of transferring energy
- Safe use of hand tools and materials

### Materials and Equipment:

- a 9 cm fan wheel template showing 12 blades
  - 1 metal lid of a cookie tin or large food jar\* for the base
  - 1 large sewing or darning needle (must have a sharp point)
  - 4 jumbo paper clips or wire, tin plate (could be from recycled food tins\*)
  - 50/50 solder and flux, spray paint, acrylic paint & brushes, permanent markers
- \*N.B. All surfaces must be cleaned before joining. Remove paint with emery paper or steel wool.
- tin snips, 40 - 80 watt soldering iron, jumbo 'bull clips' (for clamping work while soldering), needle-nose pliers, awl (or sharp nail).
- Optional: spot welder, or pop riveter.

### Scenario

There is a special celebration/anniversary about to take place in your family. Because you have been asked to help with the decorations, you want to create something very unique and eye-catching. Design and make a twirling mobile suitable for a table centrepiece.

### Design Specifications

The heat from two or more candles must power it. It must be made of metal. For safety reasons, it must be difficult to knock over. It must be interesting and attractive.

### Students will be required to submit

- Prior to fabrication** - list of brainstorming ideas, 3 rough sketches, final design choice appropriately reflects the social/family occasion
- At the end of the design process** - completed prototype, self evaluation, a labeled scientific diagram, and brief explanation of how the carousel works

### Assessment and Evaluation

- Evidence of Student Learning:** design notes/learning log, drawings, prototype has a balanced fan wheel that spins, demonstration of knowledge of design process, oral or written explanation using correct science & technology terminology, scientific diagram follows drawing conventions
- Criteria:** safe, appropriate, and effective use of materials and tools, design specification requirements are met-including use of design process, a safe product with no sharp edges, an attractive, colourful surface finish



## Got a Trade? Got it Made!

By Ann Dwornik / Pat Buchanan

Last June he began his apprenticeship with Mercedes-Benz. After three co-op experiences he was not only convinced that Auto Service Technician was the career for him, but he had also accumulated over 660 hours towards his apprenticeship through the Ontario Youth Apprentice Program (OYAP).

He started his first co-op placement at Mercedes-Benz and they like him so much they hired him to wash cars and help around the shop. His next co-op experience was at a different garage. From his supervisor there, he learned the importance of being able to diagnose a car by listening to and looking at it. "European cars are the best", he says and back to Mercedes-Benz he went for his third and final placement.

His supervisor at Mercedes-Benz was convinced that this young man was someone they wanted to hire. Given the hours that he had logged through the OYAP program, he was an even more attractive candidate. He had taken Transportation (Auto Mechanics) in grades 10, 11 and 12, which gave him a solid grounding in automotive repair. By the end of the semester they were able to offer him an apprenticeship position as an Auto Service Technician.

He was thrilled by this opportunity. As a former "English as a Second Language" (ESL) student, he, by his own admission, is not great with paperwork, but he just seems to know exactly what to do when he's with a car.

Technological studies and cooperative education makes a great combination. Students can get the opportunity to "try-on" a trade and see if it is right for them. Whether it's auto service technician, cook, hairstylist or carpenter, these apprentices have - "Got a trade! Got it Made!"



Licensed Auto Service Techs can make \$27.00 per hour and up doing what they love. OYAP students can complete license requirements sooner.

## Ministry Update on Curriculum Review Process

It is a pleasure to update the OCTE membership on the Ministry's Curriculum review process of the Technological Education Document. The Ministry has completed the feedback sessions on the proposed revisions of the new curriculum, which took place across the Province in February. Sessions were held in London, Barrie, Ottawa, Sudbury, Thunder Bay, and Toronto; they were all very well attended with some great questions and dialogue. The proposed draft revisions are posted on the OCTE website along with a survey which will provide us with very valuable information so that we can move forward and produce the best possible curriculum for the students of Ontario.

We are in year two of a three year process. The rationale of the curriculum review is to build on the quality curriculum currently in place, to ensure that the curriculum remains current and relevant, and ensure ongoing high quality education and continuous improvement in student achievement. Year one included technical analysis, focus groups, input from subject associations, along with other consultations and input. An analysis and synthesis of this information was completed and a list of recommendations for revision was generated. The recommendations were the basis of the summer writing which took place last summer. Year two included a light edit of the summer writing, review of the emphasis courses with subject experts, and feedback consultation with all stakeholders. The survey responses/comments that we will be receiving from boards across the Province will be the indicator as to what additional changes or revisions will be necessary. These changes if required will take place this summer. Year three of the curriculum review process will involve the editing process, with release and training to take place in the spring 2008 and full implementation expected September 2008. Please note that the above schedule is tentative and subject to changes. I hope that everyone has had an opportunity to review the proposed changes and provided feedback through your boards of education as well as through your subject association. The Ministry would like to thank OCTE for providing their members with the opportunity to view and provide feedback on the proposed curriculum on its website.

## Student Success.... Reach every Student

This initiative is all about maximizing choices for all students and providing the resources and support to ensure student success in all destination Pathways. The Ministry's direction is to increase high school graduation rates and reduce the number of dropouts while improving the quality of a high school education in this province.

### The key goals in the Student Success Initiative are:

- every student deserves a good outcome
- provide new and relevant learning opportunities
- build on students' interests and strengths
- effective transition from elementary to secondary school

The Ministry has six innovative new programs that allow students to customize their high school experience around learning that's relevant to them.

**Student Success Teams** - each high school now has a team consisting of a principal, a Student Success Teacher(s), and a guidance counselor. They are responsible for two primary functions, to develop school procedures and models for the effective delivery of all student success initiatives and to track, coordinate and assume responsibility for at-risk students through the Student Success Teacher. The Student Success Team also works with school staff, students, parents and the community to ensure increased credit accumulation for the students. This includes establishing a Credit Recovery Team and providing professional learning opportunities for school staff.

**Expanded Co-Op Credits** - Ontario students can now apply two co-op credits towards their 18 compulsory credits required for graduation. This broadens opportunities for experiential learning and builds stronger partnerships between education, business and community organizations.

**Specialist High Skills Major** - The Specialist High Skills Major allows students to focus on a career path that matches their individual skills and interests. Each major is a bundle of 6 to 12 courses in a selected field, such as hospitality and tourism, or construction. Students who choose a major learn on the job with employers and at skills training centres, as well as in school. They can earn valuable industry certifications, including first aid. Students who complete a major can be confident that they leave high school prepared with the knowledge, skills, and industry-recognized qualifications. Currently, SHSM is available in 27 school boards and 5 economic sectors. This will be extended next year to include other sectors and more school boards. All boards must have Ministry approval in order to offer a SHSM.

**Dual Credit Program** - With the new Dual Credit Program, high school students can earn a number of credits by participating

in apprenticeship training and postsecondary courses that count towards both their high school diploma and their postsecondary diploma, degree, or apprenticeship certification. There are co-ordinated efforts and formal links between secondary schools and post-secondary destinations to help students reach higher.

**Lighthouse Projects** - Lighthouse projects help students who need extra support and attention stay in school, accumulate needed credits, and take programs linked to colleges, and they encourage youth who have left school to return. These projects/programs can focus on alternative education, re-engaging students who have left school, credit recovery, increasing credit accumulation focusing on Grade 9 and 10, program pathways and destination pathways.

**Grade 8 - 9 Transition** - Grade 8 and 9 students have a higher risk of dropping out during the difficult transition from elementary school to high school. This initiative includes more teachers, intensive professional development, and improved tracking of struggling students and their progress.

**What is the Student Success Initiative all about?  
It's about helping all students succeed...one student at a time.**

Mary Camuti  
Student Success Leadership Team  
Toronto District School Board

## Health and Safety: DID YOU KNOW????

School-issued "certification" does **NOT** exempt employers from job-specific health and safety training.

As delivery of industry standard certification become increasingly more popular in high school, teachers need to be careful with those certifications involving health and safety. It is important to know that the Occupational Health and Safety Act (OHSA) and its regulations still apply to all workplaces. The OHSA requires that employers provide specific job-related health and safety training to all employees. So students, teachers and employers should know that even if a student has a school-issued "certification", workplace-specific safety training is still required.

Employers must ensure that all workers have the specific training necessary for their particular job, regardless of the skill sets new workers already have. Be sure students with a certificate do not think they are now exempt from job-specific training. They will need all the health and safety training that the employer must legally provide.

Adapted from "Live Safe! Work Smart!", Health and safety e-news for Ontario teachers newsletter, www.livesafeworksmart.net, February, 2007, Vol.1, Issue 2.

## Lego Robotics - "Sense the Adventure"

How can teachers turn elementary students on to Science, Technology, Engineering and Technology (STEM) programs? One sure fire way is to introduce Lego Robotics RCX and NXT kits to your classroom. The Lego Mindstorm 2.0 RCX and the smarter, stronger and more intuitive next generation NXT are robotics toolsets that provide endless opportunities for robotics enthusiasts and LEGO builders ages 10 and older to build and program robots that do what they want.

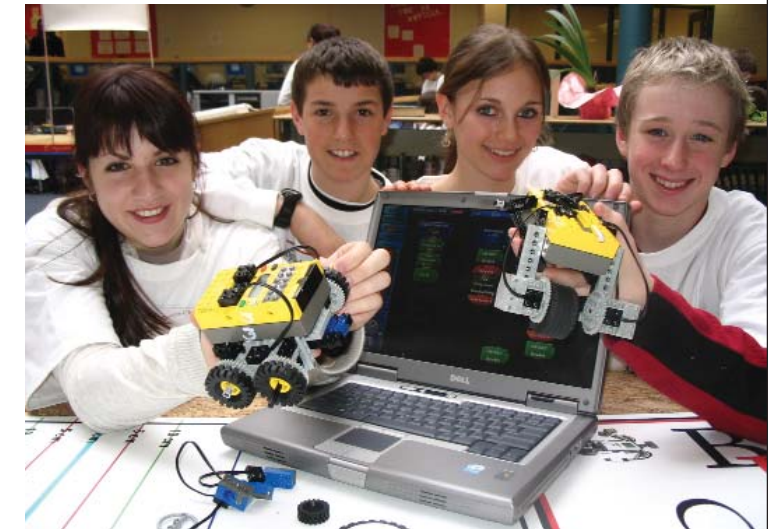
Lego robotic technology can be used to inspire young students to consider career opportunities in engineering, science, technology and understand abstract mathematical concepts while at the same time have a ton of fun.

An example of this is happening in both Halton district school boards where there has been enormous success infusing these resources into their science and technology programs. Recently 40 teams comprised of four grade 4 - 6 and 7-8 students from both public and Catholic systems converged at the Halton Skills competition at E.C. Drury in Milton to battle for "Bot supremacy". Students worked as a team completing various challenges that tested their troubleshooting, design and programming abilities and skills. A great day was had by all.

The success and enormous growth of this robotics initiative can be directly attributed to the support of senior administration for the advancement of STEM subjects in the Halton region. Committed teaching professional such as Halton public's Sean Marks, grade 7& 8 teacher from Abbey Lane in Oakville, Clifford Britton, elementary teacher at E.J. James school in Oakville, Ron Ballentine, elementary science and technology coordinator - Halton DSB, Steve Kujtan, retired computer science teacher and Bruce Mazer, computer science and engineering teacher both from Bishop Reding, secondary school in Milton and Robert De Rubeis, curriculum technology consultant for the Halton CDSB have worked to implement Lego robotic technology at the class room level and support the teachers delivering this innovative and exciting curriculum. Another reason for the success of this program boils down to one simple fact...every kid loves building with Lego!!!!

### NXT tech. specs...what does it deliver...

The new NXT "Quick Start" option makes it easy to successfully build and program a robot in 30 minutes. The All-New NXT Intelligent Brick features a powerful 32-bit microprocessor, more memory programming, 4 input ports / 3 output ports and seven 6-wire cords, Matrix display, real sound speaker, and USB 2.0 and Bluetooth technology. Along with three Interactive Servo Motors and new and improved NXT units have been beefed up with:



Grade 8 students Alex Riemenechneider; Luke Brandreth, Sarah Barnes, Colm Whitford from St. Peter elementary school in Milton show off their RCX robots at a recent Halton Catholic Lego robotics competition at Bishop Reding secondary in Milton

- Ultrasonic sensors that serve as the "eyes" of the robot that measure distance, movements and detects objects
- New Sound Sensor: the "ears" of the robot, allowing creations to react to sound commands and patterns, as well as recognize tones
- Improved Touch Sensor: the "fingers" of the robots, reacting to touch or release
- Improved Light Sensor: detects different colors and light intensity

The all new NXT programming software allows for an Easy-to-use PC and Mac compatible software interface, intuitive, icon-based drag and drop environment for "building" programs and to help you and your students to get started, 18 robot challenges with step-by-step building instructions to acclimate beginners to the process of building and programming robots and inspire older users have been added.

For more product information visit: <http://mindstorms.lego.com>