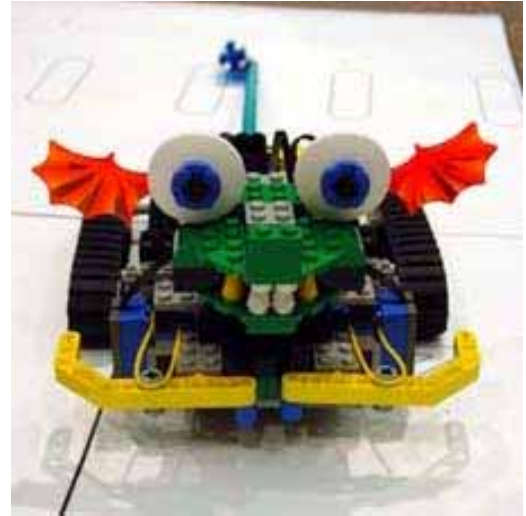


Robotic Invasion

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When it comes to integrating technology in our classrooms, even small Adventist schools can get a piece of the action. At Sylvan Meadows Adventist School, a one-teacher rural school in central Alberta, students from grade two on up can expect to study robotics. With the help of Lego’s MindStorm Robotic Invention kit, students and teachers can enjoy learning about technology in a project-based setting.



The purpose of using robotics in my classroom is to teach creative problem-solving and logic skills that are useful in many math and science fields. This study of robotics provides hands-on learning in physics, mechanics, computer programming, teamwork, and problem-solving while building teamwork skills.

The Lego MindStorm Robotic Invention Kit contains one RCX (brain of the robot), and hundreds of Lego pieces like wheels, pulleys, motors, touch sensors, light sensors and programming software. Students not only get to build the robots, they also get to program them. The kit will cost you around two hundred and fifty dollars.

How many students can use the kit at one time? That really depends on you and your students. The ideal would be to have two students per kit, but you can easily work around any problem you may encounter as far as money and number of students. If you have only money for two or three kits and have too many students, then you may want to consider assigning the project to a small group of students for a set period of time, let’s say one week per group. The rest of the class can then work on something else related to robotics during that time, and then you work out a rotating program.

There are many ways in which you can set up this fun, learning experience. I decided to assign the project as part of Bible, Social Studies, Science, Technology, L.A., and Art classes. During those subjects students worked on their projects. In a one-teacher school like mine, it is always helpful to integrate as much of the curriculum as you can! This is what the project looked like: The students themselves were to create a real-life simulation of a robot being of service to humans, or the environment. For example, rescuing a person from a fire or a biochemical attack, cleaning an oil spill, or doing the shopping for an elderly person or a physically challenged person. They were also to come up with a logo, design, saying or catchy phrase for their product. The students also had to create an ad (TV commercial, power point presentation, or poster). As part of the

project, they also had to create a model or obstacle course of the environment where the robot would do its work.

Students were assessed by the following criteria: Marketing, Design and Create a setting (miniature model), Team work (attitude, cooperation, initiative, resourcefulness etc.), and Design, Build, and Program (printout) a robot that will:

- a) Change directions and keep moving when bumping into objects like table legs, chairs, walls, etc.
- b) Go up and down a ramp
- c) Pick-up, carry, and set down an object
- d) Use light and touch sensors
- e) Use gears, axels and pulleys

It is very important to give students detailed instructions as to how to proceed because the project can be mind boggling. One thing at a time! I learned a lot on my first time around in this area. My students had a good time working on this project, but they also worked very hard.

If you don't want to set up this project as part of your day to day subjects, you can create a club or team to compete in what they call Lego Leagues run by Lego themselves or by the Michigan Conference. I hope we will soon see our own Canadian Adventist Lego League where our youth can meet to share practical, fun technology. If you are interested in what robotics can bring for your students, visit the NAD Technology and Distance Education Committee K-12 website at <http://www.nadtdec.org/> or the Adventist Lego League's website at <http://www.adventistlegoleague.net/>.