Teacher Notes: Full Speed Ahead
Introduction to Mobile Robotics > Full Speed Ahead

Description of the Unit
In order to be able to do useful tasks around a human environment, the robot needs to be able to move around common types of indoor terrain, such as a hallway. This lesson covers the basic programming required to make the robot move forward.

Unit summary: students will…
- Build the Taskbot Personal Assistant Robot (if they haven't already)
- Program the Personal Assistant to move forward and backward

Prerequisites:
- Have Taskbot or Robot Educator model (REM) robots built for each group (optional)
- Have LEGO MINDSTORMS Edu NXT programming software installed on all computers
- Have Robotics Engineering curriculum software installed on all computers
- Present to class the Full Speed Ahead slideshow from Teacher's Curriculum CD and have class discussion (optional)

Approximate classroom time: 1-2 class periods (45-minute periods)

Note to the teacher
This Activity can be done with either the Taskbot model or the Robot Educator model (REM).
This Activity, "Full Speed Ahead," is linked to the Investigation, "Wheels and Distance," in which lies the bulk of the measurement, calculation and communication work. *It is highly recommended that both activities be used together*, as they both teach critical skills which students will need in future units.

- The "Full Speed Ahead" Activity guides students step-by-step through the process of setting up the programming environment, programming the robot, and running the basic moving-forward program.
- The "Wheels and Distance" Investigation involves students in an investigation of the relationship between wheel size and the distance the robot travels in a set number of wheel rotations.

Students frequently encounter trouble while downloading. Additional information on troubleshooting downloading issues can be found in the Basics section.

Students will be able to:
1. Set up the LEGO MINDSTORMS Edu NXT programming software
2. Write a program using the NXT programming software
3. Connect the robot to the computer and download programs to it
4. Navigate to and run programs on the NXT
5. Program the robot to perform multiple actions in sequence

This unit includes a worksheet where students record observations and write conclusions; below you will find the answer key for the worksheet.