Unit 6

**Instructional Day:** 15

**Topic Description:** RoboTic-Tac-Toe Challenge and Introduction to RoboCupJunior Dance Challenge.

**Objectives:**

Students will be able to

* Debug conditional statements by testing them and compete as teams in a RoboTic-Tac-Toe Challenge.
* Describe dancing robots that have competed in the RoboCupJunior Dance Challenge. Outline of the Lesson:
* Debugging of robotic-tac-toe statements (5 minutes)
* RoboTic-Tac-Toe challenge (35 minutes)
* Introduction to RoboCupJunior Dance challenge (15 minutes)

**Student Activities:**

* Complete debugging tic-tac-toe statements by testing that they work correctly in several games.
* Participate in RoboTic-Tac-Toe challenge.
* Listen to an explanation of RoboCupJunior Dance Challenge and watch videos of dancing robots from RoboCupJunior challenges.

**Teaching/Learning Strategies:**

* Ask students to quickly test their tic-tac-toe instructions to make sure they are complete and correct. They should play tic-tac-toe following only the instructions they have written.
* Explain the challenge: each team will be acting as a single robot “programmed” by the   
  application they developed. One student will read a command from their application and the other student will execute the command. Teams play against each other, testing how successful their code is. Each game should be observed by the rest of the class and monitored to ensure the teams only execute the commands read.
* At the conclusion of the challenge, celebrate the winning team. Ask the students to describe why that team won? What have they learned? How would they improve their programs? (Remind students that precise instructions are required in programming.)
* Explain that RoboCup is a research initiative founded in 1997 by an international group of scientists interested in defining a common problem that could be addressed by researchers in robotics, engineering, and artificial intelligence. Most participants are university and industry research labs. RoboCupJunior (RCJ) was founded in 2000, with a focus on education. The RCJ Rescue challenge was piloted in 2001 and adapted in 2003. RCJ is open to students up to age 19. There are two divisions: primary, which is up to age 14, and secondary, which is age 14 to 19. The first two robot projects will be based on the RoboCupJunior program. The first one is the dancing robot which is the introductory level of the RoboCupJunior program. Students will build and program a robot that dances. Show videos of dancing robots in competition.

**Resources:**

* RoboCupJunior videos: http://rcj.robocup.org/videos.html
* More videos available through YouTube such as http://www.youtube.com/watch?v=25sZr3u-   
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