**Dancing Robot Activity**

The dancing robot assignment is based on the first level of RoboCupJunior, an international competition. More information about RoboCupJunior is available at http://rcj.robocup.org.

**Task:**

Build a robot that dances to music for 1-2 minutes.

**Requirements:**

* The robot should not take any input, only have output in the form of various dance moves.
* Dance must be 1-2 minutes long. You have a total of 5 minutes to get set up, have the robot dance, and get out of the way for the next group.
* The robot must stay in the marked space.
* The robot must be autonomous. Other than hitting the start button, no human can touch it while it performs.
* The dance should be choreographed to the music you provide. The music must be appropriate for playing at school—no obscenities, etc.
* Teams may restart the robot up to 2 times at the discretion of the teacher. Any re-started, unless due to a problem not the fault of the team, will result in a grade penalty.
* Teams are encouraged to be as creative and entertaining as possible! Props, costumes, and varied dance moves are encouraged. You may dance alongside your robot.
* Each team must print out its program and hand it in at the same time that they compete.
* Fair play is an important part of the RoboCup competition. Teams are expected to help other teams as needed and not deliberately interfere with or damage other teams’ work. All students are expected to respectfully watch all other teams compete.

**Process:**

1. Brainstorm ideas about how your robot should look, how it should work (wheels? Arms?) and how you’ll build it. Select music.

2. Start building your robot.

3. Build a program that directs the robot to do your dance moves.

4. Test and revise the program. Make sure it runs for 1-2 minutes. Make sure it matches the music. Make sure it won’t fall apart!

5. Show off the robot during the dance in class.

You will have two class periods to build and program the robot, and then you will present it on the third day.

**Performance will be judged on:**

* Programming (e.g.: use of loops, jumps, conditionals, etc)
* Choreography (e.g.: robots to move in time with music, and change actions as music changes tempo or rhythm. Choreography of humans and robots will be scored separately, etc)
* Construction (i.e., robots should be of sound construction, components should not fall off , appropriate use of gearing, smooth and reliable operation, interesting movements, effective use of mechanics to achieve a purpose, etc.)
* Entertainment Value (i.e., How much does the performance entertain or delight the audience? Originality and creativity of the presentation, etc.)
* Costume (Costume of humans and robots will be scored separately.)
* Cooperation between teams

Dance stage will be a flat area. Official RobocupJunior stage size is 6X4 m.