

# Game-Based Learning

## ED-E Dance Competition

Students from North Sydney Girls High School recently participated in an Invitational ED-E Dance Off, run by Jane Mullen from Macquarie ICT Innovations Centre.

The concept of the Macquarie ED-E project, "So You Think Your Robot Can Dance", is to incorporate the skills of talented students across the curriculum areas of Music, Dance and Computing Studies.

Competitive robotics exercises were used to pit students against each other to challenge themselves to learn about dance choreography, music composition and programming animation sequences.

Six year 8 classes were treated to Master Classes in Dance, Music and Programming that equipped them with the skills required to complete the task. Roles were allocated by the students in groups of three and they were asked to document the process they followed and their reasons for tackling the tasks the way they did.

The goal was to program ED-E the Humanoid Robot to perform a dance routine for two minutes with music composed to suit the style of dance. Each group performed their created dance in time with a video of ED-E in a final Dance off.

In preparation for the final Dance off, 10 robots were shared across each class of 30 and the students had to complete the sound and video recording, dance moves, programming and blog entries within a school day. At the end of six days, students were able to demonstrate a sophisticated display of multi-disciplinary talent.

Judging was assessed against five criteria and the top students achieved the following levels:

**Music - Structure** – Highly developed skills in organising loops into musical structures

**Music – Original Material** – Highly developed skills in creating original material to enhance the musical structure

**Technology** – Highly developed skills in creating original programming sequence to enhance the musical structure

**Dance** – Highly developed skills in demonstrating the elements of composition:

- Space
- Relationship
- Level
- Dynamics
- Rhythm and timing

**Reflection** – All members of the group contributed to the blog throughout the day by uploading photographs and reflecting on their journey.

**Robots in schools** – Many schools around the country have used robots to challenge and motivate students to work in teams and learn in different ways.

Perth-based Penrhos College has a long term ED-E program run by Chris Carmody, Head of Computing. They recently arranged a lunchtime demonstration involving their year 9 students (see photo).

The Bee-Bot is an exciting new programmable floor robot for the beginner learner (ES 1-Stage 1). Its 'big brother', the Pro-Bot, allows more complex programming involving fully programmable distances, degrees of turn and use of sensors. It includes a simple pen mechanism and a standard felt tip pen that can be used to draw routes and reflect upon and record progress. They encourage small group skills when applied to HSIE, Science, PDH and CAPA topics. Both of these are an effective way to introduce students to programming, cause and effect, angles and geometry (see photo).

NSW Government Schools interested to adopt, adapt and design tasks using robots can receive teacher training and in-school support; see [www.macict.edu.au](http://www.macict.edu.au).

## Game competitions in class

There is increasing interest in digital-based

games for classroom teachers to teach math, reading, social studies, science and electives.

Students at Plumpton Education Community schools use multiple choice gaming slides to create extra engagement in class.

A teacher can simultaneously have learners competing individually and as teams using TurningPoint's Student Response System. The system works by showing a 'LeaderBoard' slide, which tallies the cumulative totals, after PowerPoint question slides.

In addition to 'Team' slides, the following specific slides can be used to create game competitions in class: Fastest Responders; Wager, Most Valuable Player, Team and Participant Leader Boards and Speed Scoring.

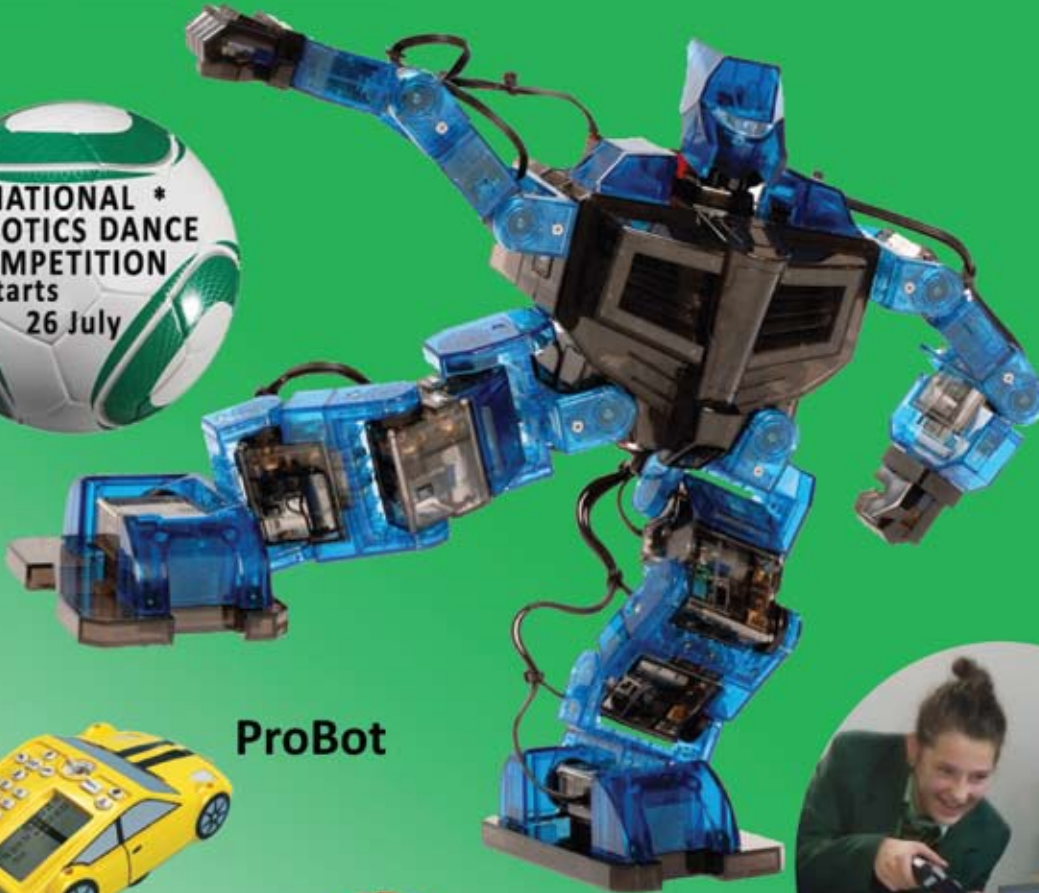
Ongoing competition can be encouraged by posting team score reports weekly.

*For more information on the ED-E Humanoid Robot, Bee-Bots and Pro-Bots and TurningPoint student response systems visit [www.keepad.com](http://www.keepad.com) or contact Keepad Interactive on 1800 463 279.*



# Scoring with Game Based Learning

# ED-E

 the programmable humanoid robot

ProBot



BeeBot



ED-E and family were designed to help students enjoy ICT, science and technology through robotics. ED-E replicates human flexibility and movements allowing students to adopt, adapt and design tasks using robots.

**\* Contact us today to receive a trial  
Robotics Animation Tool Kit to make ED-E dance!**

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