Puzzles + Games = Analytical Thinking
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Course Background

• Objective: Develop a student’s mathematical problem solving and computational thinking skills
• No. of students: 30 - 45 per section; 2 sections every semester

Course Changes

• Introduced a final project competition
• Project makes a connection with topics covered in class
• Reinforces critical thinking
• Encourages students to find links between real world problems and course topics
• Fosters collaboration between students

Results

• Project created student enthusiasm
• Enhanced learning
• Motivation: desire to win competition
• 54% of students reported the project helped them understand the course material better; 75% voted in favor of project

• Teaching format: only occasional lecturing (at most 15 minutes) to introduce an activity
• Students work in small groups of 3(activities) to 6(labs), with one TA monitoring 2 tables in ACL (Library 166)

• Final presentations were highly creative (short videos, live demonstrations of games and puzzles)
• Creative or math exam phobic students spent more time, gained better grasp

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Class gender demographics: 35.5% women and 64.5% men

Students presenting their final project at 2017 CS4RI Summit

Mawell Statsauveur and Mike Pescola related Sudoku to Graph Coloring problem (above); Elizabeth Piotrowski and Madelyn Perfit-Hart demonstrated Tower of Hanoi (below).