Puzzle: Safe and Secured Puzzlehunts Mathematical Puzzlehunts Puzzle Solution

IBL & Active Learning with Math Puzzles at Lamar University

Steven Clontz http://stevenclontz.com

Department of Mathematics and Statistics Auburn University

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You're on the tail of the vicious supercriminal Insert Name Here!

At the entrance to his/her secret lair, you find a strange combination lock. Fortunately, Insert Name Here is pretty forgetful, so you also find a post-it note with this hint for the combination:

correct combination uses exactly one of each symbol / letter / character per row and column.



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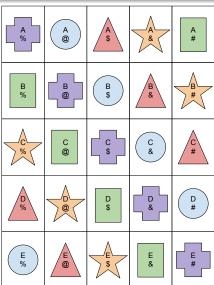
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A **puzzlehunt**, also known as a puzzle race, puzzle party, or mystery hunt, is a type of scavenger hunt where instead of a list of items to collect, players are presented with a number of puzzles to solve.

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Famous puzzlehunts include the MIT Mystery Hunt and the Microsoft College Puzzle Challenge.

Some puzzlehunts are organized by communities of puzzle solvers, and others are sponsored by companies.

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- What do we want to design our problem/puzzle about?
 - Integration
 - Morse code
- How should I present the problem so it isn't trivial?
 - Ask about area under a curve
 - Embed it as punctuation within a paragrapht
- How do I make sure the player/student doesn't get off-track?
 - Ask to prove that it equals 10
 - Hint system



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The AMP'd (Auburn Mathematical Puzzle) Challenge was founded in 2012 when attempting to adapt a weekend-long IBL math camp format into a day-long math competition. High school and middle school events are held each year, and the LaMP (Lamar Mathematical Puzzle) Challenge high school event will run in April 2015.

Rather than asking individual students to sit at a desk for two hours and work abstract mathematical problems, teams of students collaborate on puzzles by (incidentally) modeling them with mathematics.

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LaMP Format

- Opening Puzzle
 A physical challenge requiring students to run around a green space to collect the data required to solve an otherwise quick puzzle. Teams must quickly submit a solution to earn points and unlock the main game.
- Main Puzzles
 Teams receive a packet of mathematical puzzles. Each solution unveils a secret message worth points, and solving the riddle within reveals the hidden location of an EXTRA Puzzle somewhere on campus.

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LaMP Format (cont.)

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 Extensions to the main puzzles, typically optimization puzzles. Teams which submit the best solution earn points.
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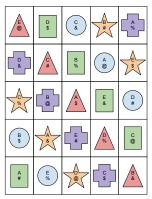
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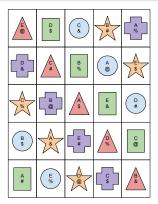
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EXTRA Puzzle: Add numbers 1-5 which appear with each column, row, shape, letter, and symbol exactly once!

By the way, this is an example of using *mutually orthogonal Latin squares*, a topic from Design Theory.

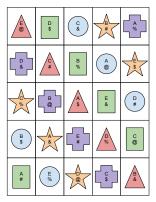




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Questions? Thanks for having me!