

IBL & Active Learning with Math Puzzles at Lamar University

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Safe and Secured

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.

Can you crack the code and access Insert Name Here's hideaway?

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






















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 A %	 A @	 A \$	 A &	 A #
 B %	 B @	 B \$	 B &	 B #
 C %	 C @	 C \$	 C &	 C #
 D %	 D @	 D \$	 D &	 D #
 E %	 E @	 E \$	 E &	 E #

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- Puzzles are hidden in a physical location within certain boundaries, or the solutions send players to hidden locations.

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- MIT Mystery Hunt
- Microsoft College Puzzle Challenge
- DASH (Different Area Same Hunt)

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

Businesses use puzzles in interviews to determine if future employees are able to problem-solve.

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Designing math problems and puzzles are very similar processes.

- 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 paragraph
- 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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- Founded in 2012 to adapt Australian IBL math camp format as a daylong MS competition
- HS event spun off as a pure puzzlehunt

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- Combination of AMP'd HS/MS formats
- First event in April 2015

Goal: have students collaborate as a team to solve puzzles by modeling them with mathematics.

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Strongly compatible with the Common Core Standards for Mathematical Practice.

- Model with mathematics.
- Make sense of problems and persevere in solving them.
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- Opening Puzzle

A physical challenge requiring students to run around a green space to collect data required to solve an otherwise quick puzzle.

- Main Puzzles

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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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- Open source materials for free use in the classroom
- Build web application to manage the game and allow remote teams to participate
- More elaborate manipulative puzzles
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EXTRA Puzzle: Add numbers 1-5 which appear with each column, row, shape, letter, and symbol exactly once!

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Questions? Thanks for having me!