


NCTM 2012 Fall Conferences

National Council of Teachers of Mathematics 2012 Regional Conference and Exposition: Chicago, Illinois

### A Minute to Win it: Motivating Mathematics Connections

Tami S. Martin  
Illinois State University  
Roger Day  
Illinois State University  
Glencoe McGraw-Hill School Mathematics

### Game show (NBC) 2010-2011



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### Mathematical Sense Making via Patterns

Patterns facilitate sense making by:

- Leading from the specific to the general or concrete to abstract
- Encouraging conjecturing and testing of conjectures (maybe proof?)
- Connecting algebraic symbols to physical or geometric representations

National Council of Teachers of Mathematics (2009). *Focus in high school mathematics: Reasoning and sense making*. Reston, VA: The Council. (Click [here](#) for more info.)

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### Connections Standard

Instructional programs from prekindergarten through grade 12 should enable all students to:

- Recognize and use connections among mathematical ideas;
- Understand how mathematical ideas interconnect and build on one another to produce a coherent whole;
- Recognize and apply mathematics in contexts outside of mathematics.

National Council of Teachers of Mathematics (2000). *Principles and standards for school mathematics*. Reston, VA: The Council. (Click [here](#) for more info.)

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### What contexts lend themselves to motivation and engagement?

- Students want to move, touch, try, do
- Their world has a high level of stimulus, interactivity, instant response
- They are attuned to media, television, internet, Facebook, Twitter, texting, YouTube
- Here is an idea...

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### MTWI: Paper Scraper

- Paper Scraper: [Blueprint](#); [Sample solution](#)
- Who is willing to try it?
- What's the connection between the number of cards used and the number of levels completed?
- What other patterns do you see in the activity?
- What are some mathematical questions that could be asked about this scenario?

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### MTWI: Stack Attack

- Stack Attack: [Blueprint](#) (Also called sport stacking)
- Who is willing to try it?
- Watch these video solutions:
  - [A Traditional Stack Attack \(Lily\)](#)
  - [A Young Stack Attack \(Sofia - 4.5 years\)](#)
  - [A Fast Attack! \(Daniel\); Even Faster!! \(Jeanie\)](#)
- What patterns do you see in the activity?
- What are some mathematical questions that could be asked about this scenario?

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### MTWI: A Bit Dicey

- A Bit Dicey: [Blueprint](#);
- Video: [Sample solution \(Michael\)](#)
- Who is willing to try it?
- What are some mathematical questions that could be asked about this scenario?

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### How else can mathematics be drawn out of MTWI?

- Breakfast Scramble – “Assemble the front of a cereal box that has been cut into 16 even pieces.”
- Candelier – “Stack 5 levels of cans, starting with 1 on the bottom and 5 on the top, with a paper plate in between each level.”
- Separation Anxiety – “Player must separate a pile of 50 multicolored chocolate covered candies into 5 separate containers in a set color order.”

NBC Website [Game Blueprints](#)

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### How else can mathematics be drawn out of MTWI?

- Cantagious – “Start with a stack of 3 empty cans in 1 hand, 3 full cans in the other. Without setting them down, transfer stacks into opposite hands.”
- Matchmaker – “Pick up 1 of 18 plastic cups on a center table and place the small candy from under that cup into 1 of 3 glasses placed around the outer rim of the stage. Object is to get 6 of each colored candy into the 3 glasses.”

NBC Website [Game Blueprints](#)

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### More ideas?

- What are your favorite contexts that lead to mathematical questions and really engage kids?
- Other resources/game shows/hobbies?

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### Final Thoughts

- Motivation: Exciting contexts pique everyone’s interests
- Mathematics: Numeric and geometric patterns are everywhere, just put on your mathematics-colored glasses to see them
- Connections: Mathematics is a powerful tool for describing the world precisely and quantitatively

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