

IMI Math Games

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On the left, Darla Werner and Angela Sellers

The goal of our presentation was to present new ways to teach the standards that are engaging and fun for students. We also hoped to help teachers find ways to modify the games to fit their classes' needs. Our session gave teachers the chance to learn new games and to see that many modifications can be made simply by talking to a colleague or two.

We began both sessions by playing the game “Greedy” to get everyone actively engaged. We then adjusted each session to accommodate the needs of the teachers that were present. In the first session, which included more elementary and fewer high school teachers, we then played “Build It” and discussed several different standards that could be taught using this game. “Exponent Ball” was next, followed by “Integer Baseball Multiplication.” Good discussion followed with suggestions to use the baseball game to also teach, practice, and/or review integer addition and subtraction as well. For the last part of the session, we demonstrated “Name That Number” with a practice hand.

In the second session we moved on to more of the algebra standards since our audience was involved in teaching those. “Slope-intercept Form\Standard Form Concentration” was well-received and a good discussion was entertained about standards could be met with this approach. Also presented were “Angle Golf,” “Angle Memory,” “Slope-Off,” and “Fishin’ For Triangles.”

Each participant received a folder that included the rules, special game cards, score sheets, and game boards for all the games presented in the session, as well as some additional games. The games and some of the Indiana Academic Standards they addressed included:

- *Greedy*: This is a probability game. As the teacher rolls a die, students keep a running total on their scoresheets. They may choose to stop at any point before the die is rolled. If a 2 is rolled, all students who have not stopped will lose all of their score. (*Grade 8 Standard 8.6.6 Understand and recognize equally likely events.*)
- *Build It*: Students deal out fraction cards and then play a game to arrange them in order from the smallest to the largest. (*Grade 7 Standard 7.1.2 Compare and order rational and common irrational numbers and place them on a number line.*)

- *Estimation Squeeze*: Players pick a number less than 600 that is not a perfect square. Players use a calculator to try and estimate the square root of their partner's number. (*Grade 7 Standard 7.1.6 Understand and apply the concept of square root.*)
- *Exponent Ball*: Using dice, students play a football game, where the roll of one die is the base number and the second is the exponent. Using a table on the gameboard, players determine the amount of yardage their token will move based on the numbers that they calculate from their rolls. (*Grade 7 Standard 7.1.1 Read, write, compare, and solve problems using whole numbers in scientific notation.*)
- *Integer Baseball Multiplication*: Using cards with the numbers 1 to 10 in two colors (one for positive integers and one for negative), players draw two cards and multiply the given numbers. Using a table on the game board, students determine if they have scored an out or a single, double, triple, or home run. (*Grade 7 Standard 7.2.1 Solve addition, subtraction, multiplication, and division problems that use integers, fractions, decimals, and combinations of the four operations.*)
- *Name That Number*: Using an *Everyday Math* deck of cards, players try to reach a target number by adding, subtracting, multiplying, and dividing as many as possible of the five cards they have been dealt. Variations on the game are also provided, using positive and negative cards, using the numbers as exponents and finding the square root, and using grouping symbols to change the order of the operations. (*Grade 7 Standard 7.3.4 Evaluate numerical expressions and simplify algebraic expressions by applying the correct order of operations and the properties of rational numbers.*)
- *Slope-Intercept Form/Standard Form Concentration*: Using cards with equations written in either slope-intercept form or standard form, students turn over two cards at a time to try and form matches of equivalent equations. (*Algebra I Standards A1.4.3 Write the equation of a line in slope-intercept form. Understand how the slope and y-intercept of the graph are related to the equation.*)
- *Slope Off*: Using the ace through six cards and the jokers from a regular deck of cards (one color is negative and the other positive, and jokers represent zero), students draw four cards and use them to create two ordered pairs. Students then race to determine the slope of the line created by the two points. (*Algebra I Standard A1.4.2 Find the slope, x-intercept, and y-intercept of a line given its graph, its equation, or two points on the line.*)
- *Angle Golf*: Students draw angles, estimate their measures, and then compare the estimates to the actual measures. (*Grade 6 Standard 6.5.1 Select and apply appropriate standard units and tools to measure length, area, volume, weight, time, temperature, and the size of angles.*)
- *Angle Memory*: Using cards with different angle measurements, students turn over two cards at a time to look for complementary or supplementary angle pairs. (*Grade 6 Standard 6.4.1 Identify and draw vertical, adjacent, complementary, and supplementary angles and describe these angle relationships.*)

- *Fishin' for Triangles*: Using cards with different angle measurements, students play a version of “Go Fish” in which they try to get three angles whose measurement add up to 180 degrees. (*Grade 6 Standard 6.4.4 Understand that the sum of the interior angles of any triangle is 180°.*)
- *One*: Players roll two to six dice of two different colors. One color represents positive numbers and the other negative numbers. The dice are rolled, and students work individually or in pairs to create number sentences that equal one. (*Grade 8 Standard 8.2.1 Add, subtract, multiply, and divide rational numbers in multi-step problems.*)