Box Cars and One-Eyed Jacks

MIDDLE YEARS MATH GAMES
FOR LINEAR EQUATIONS AND MIXED OPERATIONS

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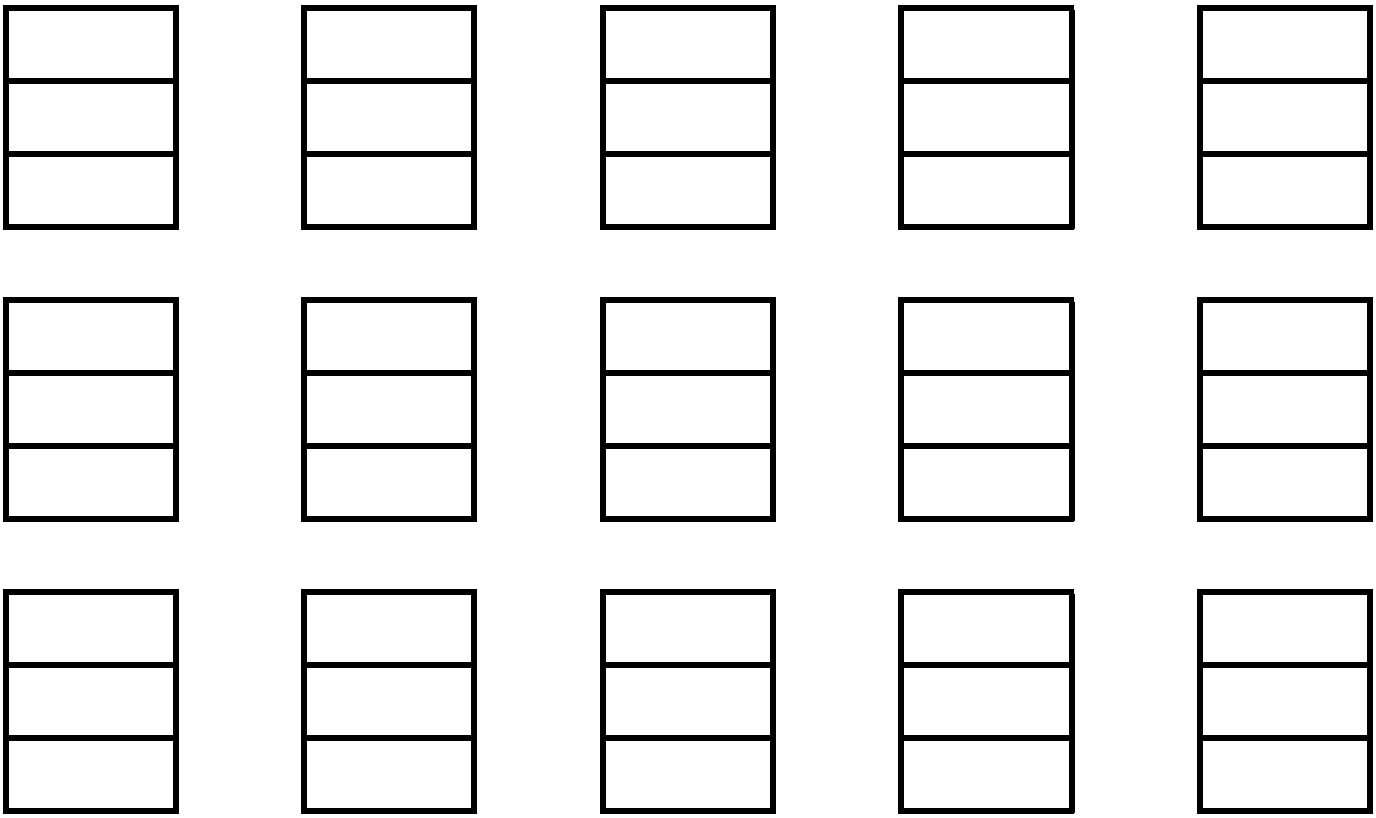
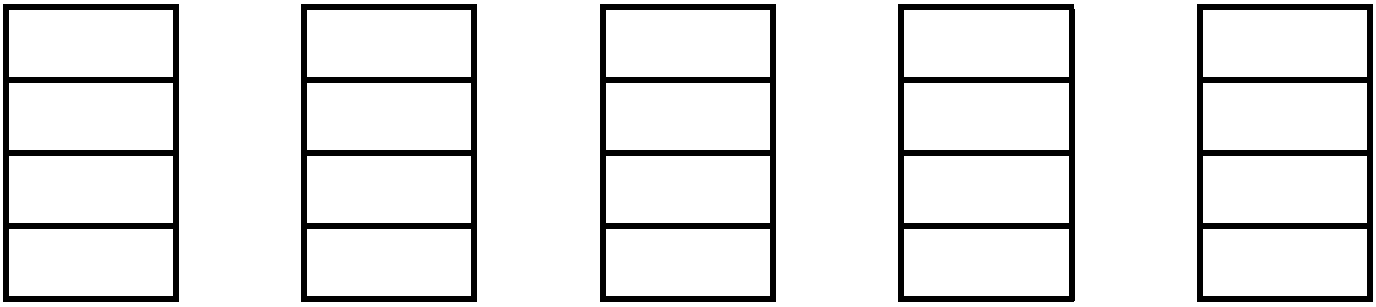
Betweeners



4 Player Version – Highest doesn't win. Lowest doesn't win. The two between numbers win.



Betweeners

Variation of Betweeners From Math Attack

Concepts: Number Sense, Ordering Numbers (whole and decimal)
Equipment: One 3inCube die / player
Goal/Object: record a number that is between the highest and lowest for the round

Traditional- Each player shakes their own 3inCube die and secretly looks at it, mentally determining the possible answers they could use. Each player then secretly records one of their possible answers. Once all the players have recorded their answer, they reveal it to the other players. All players copy all other players' answers onto their own score sheet. The answers are compared, lowest doesn't win, highest doesn't win, between number (or numbers if 4 player game) wins.

Variations:

(1) Players are allowed to create numbers with decimals meaning answers can range from 0.111 to 666.
(2) Players create multi-operation math sentences trying to have the between answer example 3+2x1=5
(3) Players create mixed fractions example 3 2 1 makes 3½ or 1⅔ or 2⅓ 2 1 1 can only make 1½
(4) For simpler version of the game, each player can use a 1-12 die (or 1-20 die/player or 1-30 die/player)

100 Board Wipe Out

Roll 1	Roll 4
Roll 2	Roll 5
Roll 3	Roll 6

- Roll 3 to 5 dice, record numbers, create math sentence
- Mark on 100 Board at answer or on answer sheet
- Keep making math sentences with same roll until no longer possible, then re-roll
- RECORD IN WRITING ALL MATH SENTENCES.

= 1	= 26
= 2	= 27
= 3	= 28
= 4	= 29
= 5	= 30
= 6	= 31
= 7	= 32
= 8	= 33
= 9	= 34
= 10	= 35
= 11	= 36
= 12	= 37
= 13	= 38
= 14	= 39
= 15	= 40
= 16	= 41
= 17	= 42
= 18	= 43
= 19	= 44
= 20	= 45
= 21	= 46
= 22	= 47
= 23	= 48
= 24	= 49
= 25	= 50

= 51	= 76
= 52	= 77
= 53	= 78
= 54	= 79
= 55	= 80
= 56	= 81
= 57	= 82
= 58	= 83
= 59	= 84
= 60	= 85
= 61	= 86
= 62	= 87
= 63	= 88
= 64	= 89
= 65	= 90
= 66	= 91
= 67	= 92
= 68	= 93
= 69	= 94
= 70	= 95
= 71	= 96
= 72	= 97
= 73	= 98
= 74	= 99
= 75	= 100

COMMIT AND CAPTURE

1. $\square \times (\square - \square) - \square =$

2. $\square + \square \times \square \div \square =$

3. $\square^2 - \square \times \square - \square =$

4. $\square + \square \div \square \times \square =$

5. $\square \times (\square + \square) - \square =$

6. $\square [\square^3 \times (\square - \square)] =$

7. $\square \div \square + \square \times \square =$

8. $\square \div \square \times \square - \square =$

Quick Version: Teams of two competing against other teams of two. Each team has their own gameboard, there can be a variety of dice to use or just use standard 6-sided dice. Teams take turns choosing a die and rolling it. They must fill in an open space of the math sentence with the number they rolled. Teams fill in one math sentence at a time. When the sentence is complete for both teams, the team with the greatest value as an answer wins the round.

Quicker Version: Played the same as above but the roll that one team makes must be used by both teams. There is a possibility for a lot of ties with this method.

Most Math Version: Played the same as Quicker Version except each team may place the roll on any open space on any math sentence. Scoring is not performed until the entire sheet has been filled in.

Thought Provokers:

1. Since it is possible for negative answers who wins when the outcome is -34 for one team and +19 for the other team (-34 has a greater absolute value compared to +19)?
2. What about playing for the smallest possible value?
3. What about playing for the middle value in a game of 3 teams?

What's My Number

Concepts: Place Value to 100,000.000s
Equipment: One 0-9 die and gameboard
Goal/Object: build largest number

Players take turns rolling a 0-9 die. All players use the number rolled and record it on their gameboard (or blank paper with 9 dashes). Players continue to take turns rolling the die with all players recording each roll in such a way that they build the largest number they can (their numbers will likely be different as each player may record their rolled number in a place different than the other players). Once all of the spaces have been filled in (after 9 rounds), the players compare their numbers. The player with the largest number wins the round.

Variations: (1) Roll the die 9 times quickly to create a target number. Players then play the normal way but try to create a number closest to the target number.
(2) Three players but trying to create the "between" value ie between other two players

From: All Hands On Deck - Family Edition

Salute

Box Cars "All Hands On Deck" Mystery Number (adapted)

Concepts: Missing Addend, Factor
Equipment: Cards 0-12 (J=11 Q=12 K=0)
Goal/Object: Figure Out value of the card on your head

Usually 3 players with one player taking the role of "General". The General says "salute". The other two players take the card from the top of their deck and WITHOUT LOOKING AT IT place it on their forehead so everyone else can see what the card on their forehead is. The General Adds the two cards together and says "The sum of your two cards is...." The two players then use the sum and the card they can see on their opponent's forehead to try and figure out their own card.

Variations: (1) Mulitplication (take out 0s)
(2) 4 Players (one General, 3 soldiers)
(3) Red = neg integers / Black = pos integers

Balanced Equations

Concepts: Problem Solving, Linear Equations
Equipment: Two 3-in-a-Cube Dice / Game
Goal/Object: Be the first player to create a balanced equation.

A player shakes both 3-in-a-Cube dice and places them on the table so all players can see them. Each player (or team of two - if that is the way the teacher has set them up) races to create a balanced equation with the numbers from one die on one side of the equation and the numbers from the other die on the other side of the equation. A player says "Balanced" when they have a balanced equation. Other players verify the "Balanced" player's equation. If correct, that player earns a point. In the case of a tie, if both players have a balanced equation (they could be different but still correct) they both earn a point. The player with the most points at the end of the time wins. All players record all the winning answers for each round.

Example: 3, 2, and 6 as well as 1, 2, and 5
$3^2 - 6 = 5 - (1 \times 2)$ **OR** $6 - 2 + 3 = 1 \times 5 + 2$

Throw an Equation

Concepts: Solving Linear Equations
Equipment: Solve for X dice, Exponent Dice and various other dice.
Goal/Object: Create an equation that you can solve that is hard for your opponent to solve.

Two teams of 2 players each. Each team selects some dice (number, operation, and either Solve for X or Exponent dice). The team then rolls the dice and using the ALL the items rolled, create a linear equation and solve it. Meanwhile, the other team chooses their own dice, creates their own sentence with their roll and solves their own equation. Once each team has solved their own equation, they make a new copy of the equation (unsolved) on a separate piece of paper. On "go", teams hand their equation to the other team. Teams race to solve the other team's equation first.

Variation of game in Radical Math

MIXED OPERATION SUPER MUSH

LEVEL: 3 – 8

SKILLS: multi-operations, order of operations, problem solving

PLAYERS: 2 (cooperative team) vs all teams in the class

EQUIPMENT: tray, recording sheet

GOAL: to fill up the tray with all 36 dice with multi-operational math sentences that match the selected target

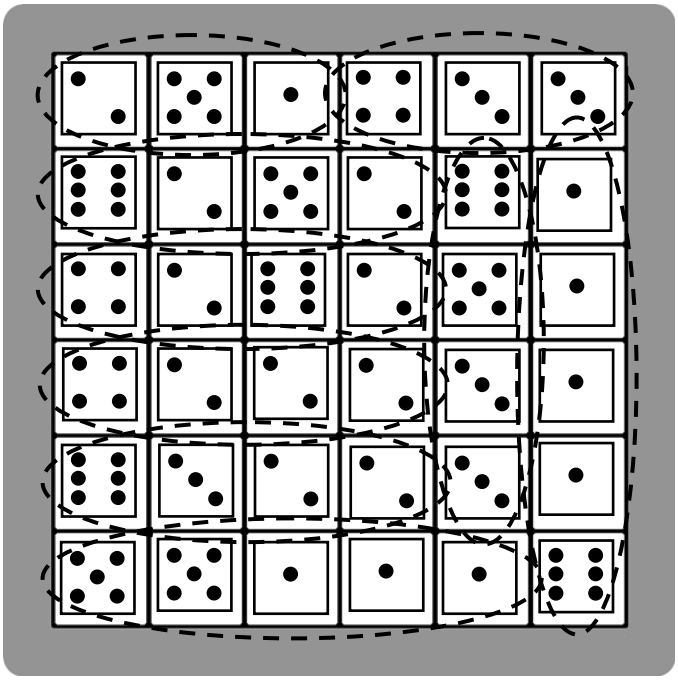
GETTING STARTED:

All dice are removed from the tray and "super mushed" – i.e. scrambled and rolled for about 20 – 30 seconds. The teacher calls stop and the dice are then set for the activity. To begin, all teams now hunt for multi-operational combinations of dice that match the target number and place them into their tray.

Teams must use 3, 4, or 5 dice in combination and must use at least 2 operations in each math sentence. All four operations can be used.

EXAMPLE:

Target called is "10"



2 x 5 x 1 = 10

(6 ÷ 2) + 5 + 2 = 10

(4 ÷ 2) + 6 + 2 = 10

1 + 1 + 1 + 1 + 6 = 10

6 + 5 – (3 ÷ 3) = 10

4 + (2 x 2) + 2 = 10

6 + 3 + (2 ÷ 2) = 10

(5 + 5) x 1 x 1 x 1 = 10