

**box cars
and
one-eyed jacks®**

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Box Cars Math Games

PreK - 2nd Grade

August 18, 2011

Presented By

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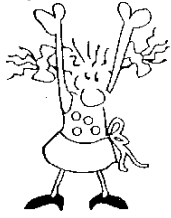
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**Get ready for some
serious FUN and games!**

Notes:



Games as a Teaching Strategy



Make math fun & motivating;
meaningful context for repetitive
practice and exploration of concepts



Multi-sensory, manipulative
experience - use all learning channels



Complement any existing
mathematics program; reaches all
levels in a class



Beyond rote memory - connections
through patterns, strategy, talk



Rich in problem solving opportunities



Language and Communication;
Writing in math journals



Opportunities to invent and create

Make The Games Come To Life

- ◆ Every Student Participates - Not used as reward
- Games as Warm Ups
 - Short play period
 - Frequent 5-10 mins / day
- Games to Teach a Concept - Longer play period
 - Practice a concept
 - Review a concept
- Center Play
- Cross Graded Play
- Assignments
 - Students are the experts
 - Learn game & teach it
- ◆ Invent a Game
- Home Connections

Get Rolling!

Learn One New Game
Every Week



Notes:

Game # _____

Skills: _____

Players: _____

Equipment: _____

Rules:

Let The Games Begin

All the Box Cars games are written using the same format. As a sample, we've chosen one of our basic games to familiarize you with our style.

LEVEL: Grade 1 - 3
SKILLS: addition facts 1 - 10, 1 - 18 combinations
PLAYERS: 2
EQUIPMENT: Cards (Ace = 1) - 5, or (Ace = 1) - 9
GETTING STARTED: Players divide cards evenly between themselves. Each player turns over two cards and adds them together. The highest sum gets all the cards. In the event of a tie; (ie: each player has the same sum), WAR is declared. Each player deals out three more cards face down and then turns over two more cards. These two cards are added together. The highest sum wins all of the cars. Play continues until one player has collected all of the cards.

Cards 1 - 5 Grade 1 - 2 Sums to 10
Cards 1 - 9 Grade 2 - 3 Sums to 18

Player 1	Player 2
2 + 3	4 + 1
War is declared	
2 + 3	4 + 1
_____	_____
_____	_____
4 + 3	6 + 2

3 cards are turned upside down.

Player 2 collects all of the cards

Try These Variations

Place Value War
Subtraction War
3 Addend War
Multiplication War
Integer War
Fraction War

Remember: War is a traditional game. However, due to the negative connotation you may want to change the term "war" to one of your own choice. We often call these our Buzz Games (ie. Three Card Buzz).

Notes: _____

The following game boards are teacher and student favorites. Yours to copy and use.

DOUBLES + PATTERNS

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DOUBLE



$1 + 1 = 2$

$2 + 2 = 4$

$3 + 3 = 6$

$4 + 4 = 8$

$5 + 5 = 10$

$6 + 6 = 12$

$7 + 7 = 14$

$8 + 8 = 16$

$9 + 9 = 18$

DOUBLE + 1



$1 + 2 = 3$

$2 + 3 = 5$

$3 + 4 = 7$

$4 + 5 = 9$

$5 + 6 = 11$

$6 + 7 = 13$

$7 + 8 = 15$

$8 + 9 = 17$

$9 + 10 = 19$

NICKNAME

Goal Post

Rabbit, Kangaroo, Caribou

Dental

Spider, Octopus

Ten Tickly Fingers

“Box Cars”, Egg Carton, Farmers

Valentines Day

Sweetheart

Adult Double

-
- Learn doubles – cards 1-6 or 1-9, regular dice, 10 sided 0-9 dice
 - +1 Trick counting on
 - Doubles + 1 → Then transfer to symbolic work
-

PATTERNS FOR DICE PLAY

1	2	6
2	4	7
3	6	8
<u>+4</u>	<u>+8</u>	<u>+9</u>
10	20	30

SIMPLE SIXES

SUCCESSFUL SEVENS

EASY EIGHTS

NIFTY NINES

TERRIFIC TENS

ENORMOUS ELEVENS

TREMENDOUS TWELVES

HORSE RACE

2 DICERS
2 PLAY



This is a game for two Dicers to play at one time. Players use one tray divided so that each player uses only their half.

4 LEVELS
OF
PLAY

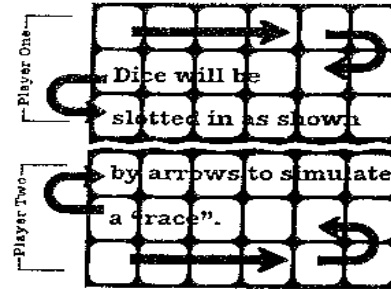
TO BEGIN

Each Dicer chooses eighteen dice of their own colour and these are removed from the tray.

THE GOAL

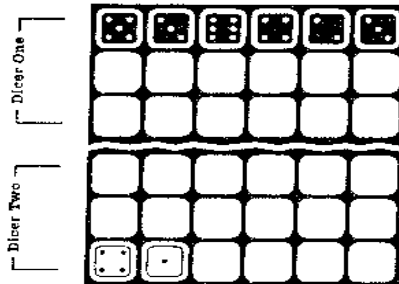
The goal of the game is to have the most dice in your side of the "horse race track" after all dice have been rolled out for the round. Dicers roll two dice at one time.

Dicers add their two dice and compare their sums. The Dicer with the greatest sum places them into their side of the "horse race track". Their opponent places their two dice into the lid (losing side). Dicers pick up two new dice, roll, add and compare their sums. The Dicer with the greatest sum places them into their side of the "horse race track" and their opponent places them into the lid. In the event of a tie sum, both Dicers place their dice into their own side of the "horse race track". Dicers roll out all remaining dice. The Dicer with the most dice on their side of the "horse race track" after nine tosses, is the winner.



The tray is divided between the two players as shown.

EXAMPLE



Play After 3 of 9 Rounds.

Toss 1

Dicer One + = 8 → WINS and places dice in tray

Dicer Two + = 5 → Tosses dice into lid

Toss 2

Dicer One + = 10 → WINS and places dice in tray

Dicer Two + = 3 → Tosses dice into lid

Toss 3

Dicer One + = 8 → TIE both players place dice in tray

Dicer Two + = 5

LEVEL 1

Play is outlined above, Dicers roll two dice and add.

LEVEL 2

Play as described in above rules, but now Dicers roll three dice and add for the greatest sum. The Dicer with the greatest sum (answer) places them into their side of the "horse race track".

$$\begin{matrix} 6 & 2 & 1 \\ + & + & + \\ \hline 9 \end{matrix}$$

LEVEL 3

Play as described in above rules, but now Dicers roll two dice and multiply $\begin{matrix} 6 & 2 \\ \times & 6 & 2 \\ \hline 20 \end{matrix}$ for the greatest product. The Dicer with the greatest product (answer) places them into their side of the "horse race track".

LEVEL 4

Play as described in above rules, but now Dicers roll three dice, add two, and multiply by the third for the greatest product. See example.

The Dicer with the greatest product places them into their side of the "horse race track".

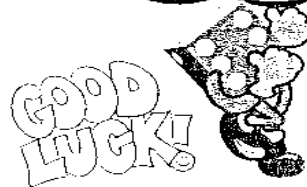


$$(5 + 3) \times 6 = 48 \checkmark \text{ Best Choice}$$

$$(6 + 3) \times 5 = 45$$

$$(6 + 5) \times 3 = 33$$

You will have to do some thinking here to create the best possible answer for your roll. Will there always be 3 possible answers?



TIC TAC TEN

0 1 2 3 4 5

0

0

1

2

3

4

5

1

1

2

3

4

5

6

2

2

3

4

5

6

7

3

3

4

5

6

7

8

4

4

5

6

7

8

9

5

5

6

7

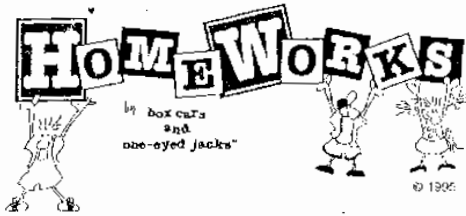
8

9

10

Addition Tic Tac Toe

	0	1	2	3	4	5	6	7	8	9
0	0	1	2	3	4	5	6	7	8	9
1	1	2	3	4	5	6	7	8	9	10
2	2	3	4	5	6	7	8	9	10	11
3	3	4	5	6	7	8	9	10	11	12
4	4	5	6	7	8	9	10	11	12	13
5	5	6	7	8	9	10	11	12	13	14
6	6	7	8	9	10	11	12	13	14	15
7	7	8	9	10	11	12	13	14	15	16
8	8	9	10	11	12	13	14	15	16	17
9	9	10	11	12	13	14	15	16	17	18



MULTIPLICATION TIC TAC TOE

- LEVEL:** Grade 2 - 3
- SKILLS:** Beginning multiplication - products to 25
- PLAYERS:** 2
- EQUIPMENT:** 2 0-5 dice, one gameboard, 2 different coloured markers
- GETTING STARTED:** Players select a colour of marker. The goal of the game is for players to get three bingo chips of their own colour in a row, either horizontally, vertically, or diagonally. Player one rolls the dice and multiplies them, verbalizing the product to their opponent i.e., Player rolls 2 and 4, verbalizes $2 \times 4 = 8$ and $4 \times 2 = 8$ and covers the two corresponding spaces on the gameboard. Player two now rolls and covers their corresponding spaces on the gameboard. Players continue to alternate turns trying to get TIC-TAC-TOE – THREE IN A ROW.
- When this happens the player removes their markers and counts two points for each marker (six points for three in a row, eight points for four in a row, etc.)
- Capturing an Opponent's Space:** If a player rolls a product that is occupied by their opponent then that player removes their opponent's marker and replaces it with one of their own. Each captured marker is worth five points.
- Rolling Your Own Space:** If a player rolls a product that they already occupy, they may roll again to get a new product. Players continue to alternate turns for a set period of time. At the end of play, the player with the most points wins.

	0	1	2	3	4	5
0	0	0	0	0	0	0
1	0	1	2	3	4	5
2	0	2	4	6	8	10
3	0	3	6	9	12	15
4	0	4	8	12	16	20
5	0	5	10	15	20	25



Hundred Board

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100



TICK TOCK ROLL A CLOCK



WHAT YOU'LL NEED

Each Double Dicer needs one Three-In-A-Cube Die, paper, pencil.

TO BEGIN

Each player needs to draw a clock as follows:

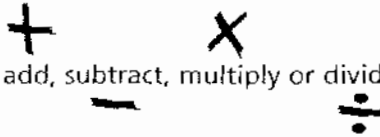


THE GOAL

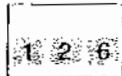
To be the first Double Dicer to circle all numbers on their clock.

LET'S ROLL

Player One rolls the die and may now add, subtract, multiply or divide the three numbers to target any number between 1 - 12.



EXAMPLE



Player One can circle on their clock, either:

$6 \times 2 \times 1 = 12$ OR $6 + 2 + 1 = 9$ OR $(6 \div 2) + 1 = 4$ etc.

Players can circle only one number per roll. Players alternate rolling the die, analyzing their combinations, trying to be the first player to circle all the numbers on their clock. If a player is unable to find a combination for any of the remaining numbers, play continues to their opponent.



Do you think there are certain numbers that will be more difficult to circle?



Play & Discover!

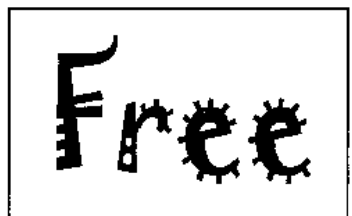
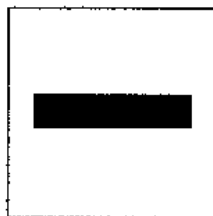
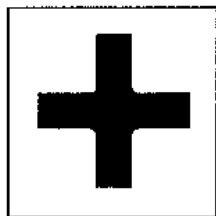
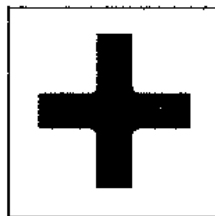
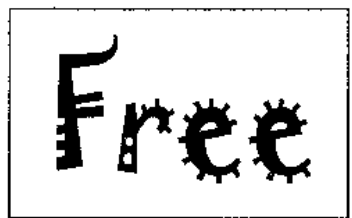
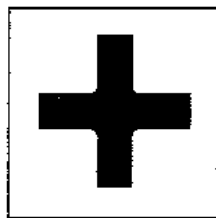
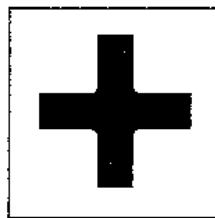
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VARIATIONS:

- Use regular double dice instead with
 - adding only (after 2-12 then whenever a "1" comes up either die to get the one)
 - adding or subtracting
 - adding, subtracting, multiplying, dividing.

Double Dice Decisions



Flippin' Out

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Ones

An empty rounded rectangular box for recording the ones digit of Player Two's number.

Tens

An empty rounded rectangular box for recording the tens digit of Player Two's number.

Player Two

Ones

An empty rounded rectangular box for recording the ones digit of Player One's number.

Tens

An empty rounded rectangular box for recording the tens digit of Player One's number.

Player One

BETWEENERS

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Name _____

Order In The Court

Date _____

Reject Rolls

Reject Rolls

Reject Rolls

Reject Rolls

Reject Rolls

Reject Rolls

Use Double Sided Dice; 6-Sided Dice; or 1-12 Dice

Goal: To get as many fractions in a row as possible

- Roll one die at a time (Variation: You may roll all the dice at once and race your partner to line them up)
- Write the fraction into the chain or put into the reject boxes
- Points are awarded at the end of 7 rolls. 1 point for each fraction in the chain.
- Use Fraction Circles or Fraction Bars to check accuracy

Fractions, Decimals, Percents

1 Whole Number											
		1/1		1.0		100%				2/2	
				One half							
		1/2		.5		50%				2/2	
				One Third							
		1/3		.333		33.3%		2/3		3/3	
				One Fourth							
		1/4		.25		25%		3/4		4/4	
				One Fifth							
		1/5		.2		20%		2/5		5/5	
				One Sixth							
		1/6		.166		16.6%		2/6		5/6	
				One Seventh							
		1/7		.142		14.2%		2/7		7/7	
				One Eighth							
		1/8		.125		12.5%		2/8		7/8	
				One Ninth							
		1/9		.111		11.1%		2/9		8/9	
				One Tenth							
		1/10		.1		10%		2/10		9/10	
				One Eleventh							
		1/11		.0909		9%		2/11		10/11	
				One Twelfth							
		1/12		.083		8.3%		2/12		11/12	

Implementation Plan

List 3 ways you can incorporate the Box Cars strategies into your classroom, program or school.

1.

2.

3.

Identify the game/activity that you will try first, when you get back later this week.

Find a colleague in this room whom you will contact at the end of the week. The two of you will be agreeing to hold a conversation regarding what you did to start implementing what you learned today.

Who:

From:

Phone:

Email:

You can reach me at:

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