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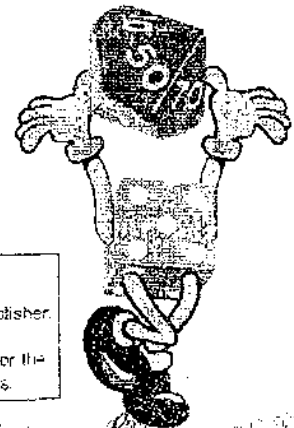
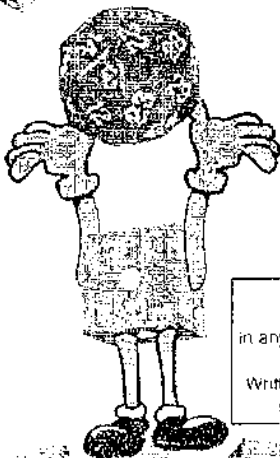
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**Operation
Box Cars**

Presented by

John Felling

Kindergarten - 2nd Grade



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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:

Math Games - Table of Contents

Game Number	Game Name	Concepts Covered



The main purpose of "Jot Notes" is to have a written record of the rules for reference. Even if a student forgets, they should be able to "figure out" how to play again with good jot notes. They can be used in both a classroom and home setting.

JOT NOTING

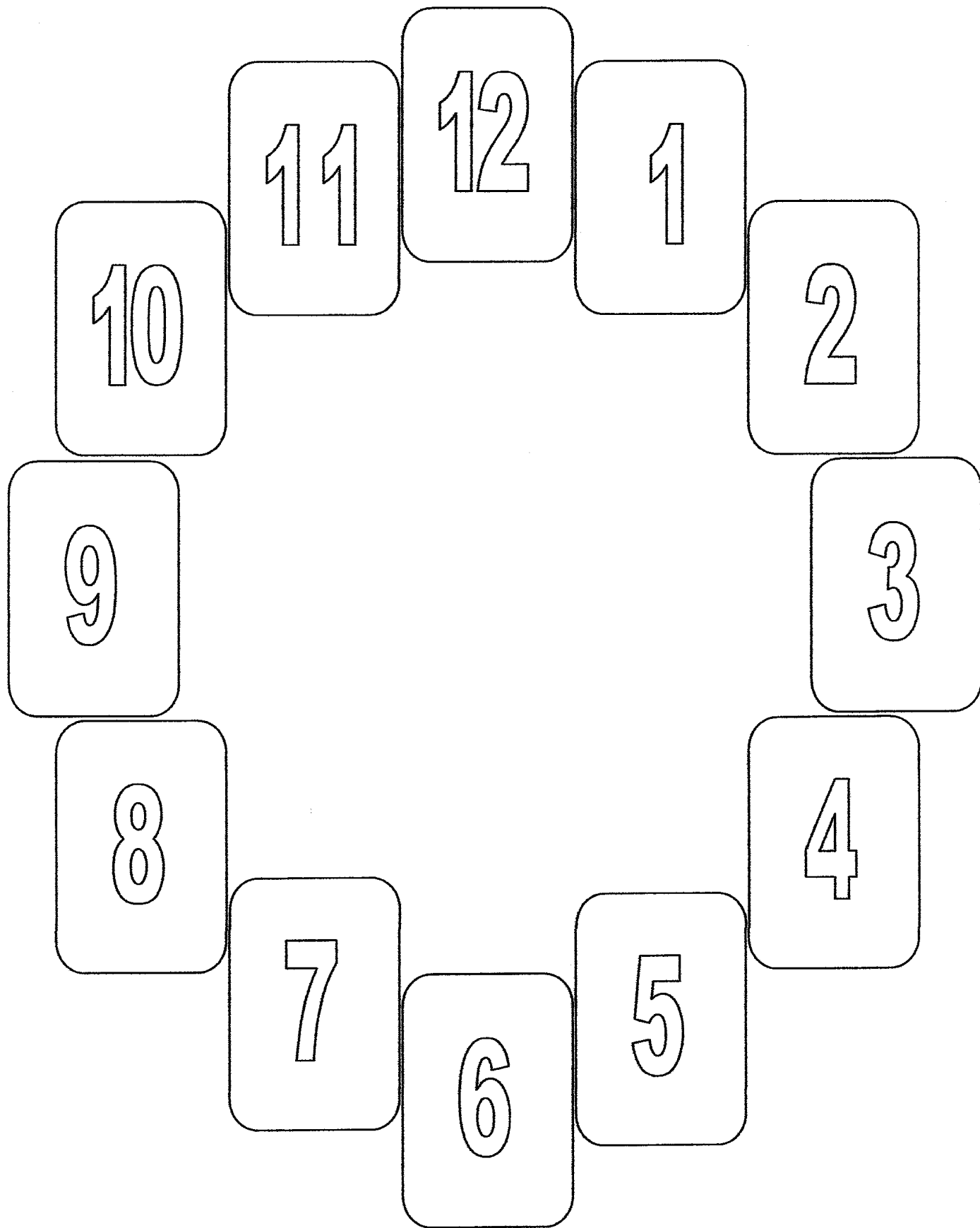
- Is a life skill
 - Hear information and transfer it to print
 - Time saving technique that can be used in all subject areas
 - Need to develop shorthand and abbreviations
 - These must make sense to your students – connections are stronger and better remembered when they help develop them
-
- S = Skills
 - P = Players
 - E = Equipment
 - G = Goal
 - G.S. = Getting Started
 - W.I.Y.T. = When it's Your Turn
 - A.T. Alternate Turns
-
- Develop the language of game playing and rules as you go.
 - Start a games journal dictionary of terms and abbreviations

NUMBER LINE WORK

--

0 1 2 3 4 5 6 7 8 9 10

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20



NUMBER WORD BLACKOUT

one

two

three

four

five

six

seven

eight

nine

ten

eleven

twelve

Rolling A “Round”

00	10	20	30	40	50	60	70	80	90	100											

Total Number of Rolls

Total Rounded Up

Total Rounded Down

DOUBLES + PATTERNS

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

4 LEVELS OF 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.

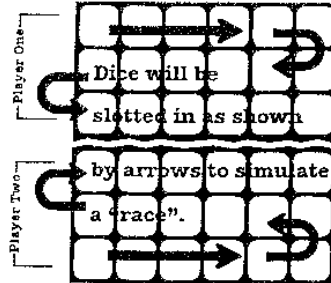
TO BEGIN

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

THE GOAL

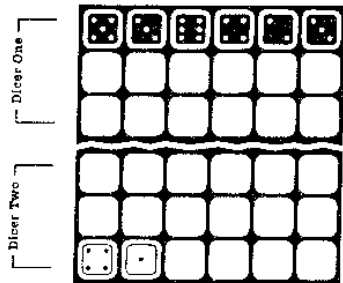
The goal of the game is to have the most dice in your side of the "horse race track" after all dice have been rolled out for the round. Dicers roll two dice at one time.

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 + = 5 → 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".

$$\text{dice 3, 2, 4} + \text{dice 3, 2, 4} = 9$$

LEVEL 3

Play as described in above rules, but now Dicers roll two dice and multiply $\text{dice 4} \times \text{dice 5} = 20$ 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".



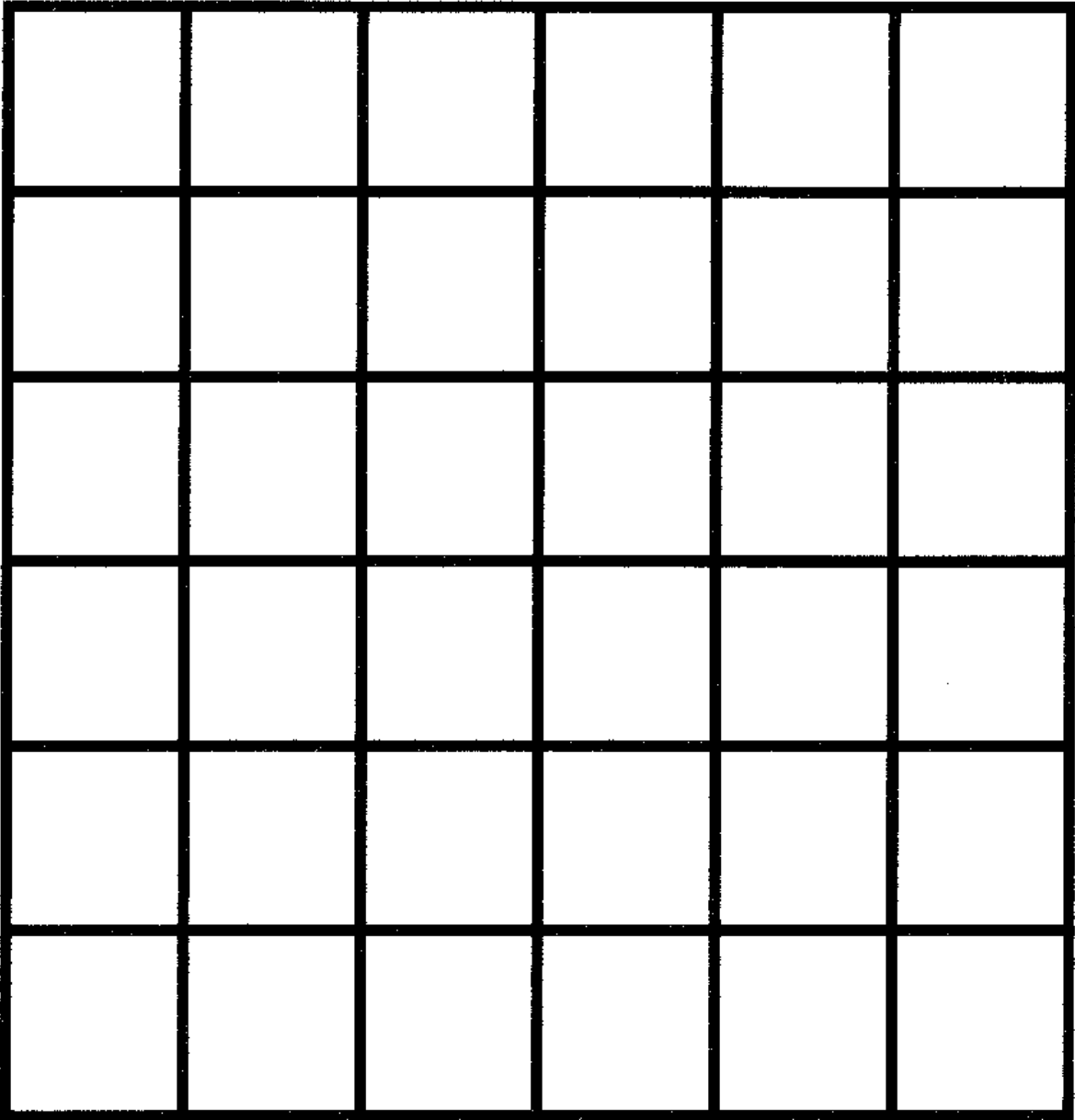
$$(5 + 3) \times 6 = 48 \rightarrow \text{Best Choice}$$

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

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

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

GOOD LUCK!



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

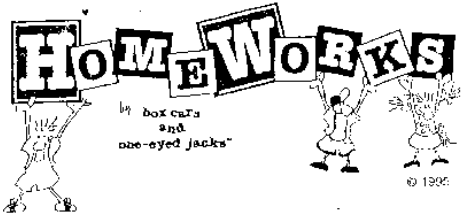
	0	1	2	3	4	5	6	7	8	9
0	0	1	2	3	4	5	6	7	8	9
1	1	2	3	4	5	6	7	8	9	10
2	2	3	4	5	6	7	8	9	10	11
3	3	4	5	6	7	8	9	10	11	12
4	4	5	6	7	8	9	10	11	12	13
5	5	6	7	8	9	10	11	12	13	14
6	6	7	8	9	10	11	12	13	14	15
7	7	8	9	10	11	12	13	14	15	16
8	8	9	10	11	12	13	14	15	16	17
9	9	10	11	12	13	14	15	16	17	18

Double **D**ice **D**ecisions

+	+	-	-	Free
+	+	-	-	Free

Double **D**ice **D**ecisions

+	+	-	-	Free
+	+	-	-	Free



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



Flippin' Out



Tens

Ones

Tens

Ones

Player One

Player Two

000	100	200	300	400	500	600	700	800	900	>
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	---

Hundreds

Tens

Ones

Hundreds

Tens

Ones

Player One

Player Two

Hundred Board

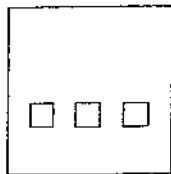
1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

BETWEENERS

USING THREE IN A CUBE DICE

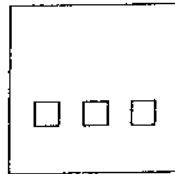
READ AND CHUNK PLACE VALUE

ROLL 1

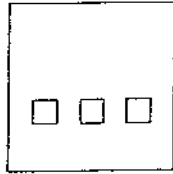


Hundreds
Tens
Ones

ROLL 2

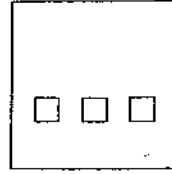


Hundred Thousands
Ten Thousands
Thousands

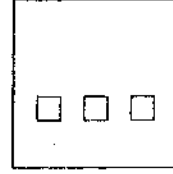


Hundreds
Tens
Ones

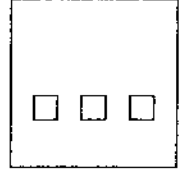
ROLL 3



Hundred Millions
Ten Millions
Millions



Hundred Thousands
Ten Thousands
Thousands



Hundreds
Tens
Ones

WARM UP:

ROLL THREE IN A CUBE TO BUILD THE GREATEST NUMBER POSSIBLE

ROLL THREE IN A CUBE TO BUILD THE LEAST NUMBER POSSIBLE

ASSIGN RED/WHITE/BLUE AS HUNDREDS/TENS/ONES (UNITS)

TO PLAY

ROLL AND HIDE CUBE

BUILD THE BEST "BETWEEN" NUMBER. WRITE NUMBER DOWN

COMPARE AND SCORE. BETWEEN NUMBER WINS 1 POINT

EXAMPLE

246
351
556

BETWEENERS

Star 99 / Two Digit Scramble

10 - 19 _____

20 - 29 _____

30 - 39 _____

40 - 49 _____

50 - 59 _____

60 - 69 _____

70 - 79 _____

80 - 89 _____

90 - 99 _____

10 - 19 _____

20 - 29 _____

30 - 39 _____

40 - 49 _____

50 - 59 _____

60 - 69 _____

70 - 79 _____

80 - 89 _____

90 - 99 _____

Star 99 / Two Digit Scramble

10 - 19 _____

20 - 29 _____

30 - 39 _____

40 - 49 _____

50 - 59 _____

60 - 69 _____

70 - 79 _____

80 - 89 _____

90 - 99 _____

10 - 19 _____

20 - 29 _____

30 - 39 _____

40 - 49 _____

50 - 59 _____

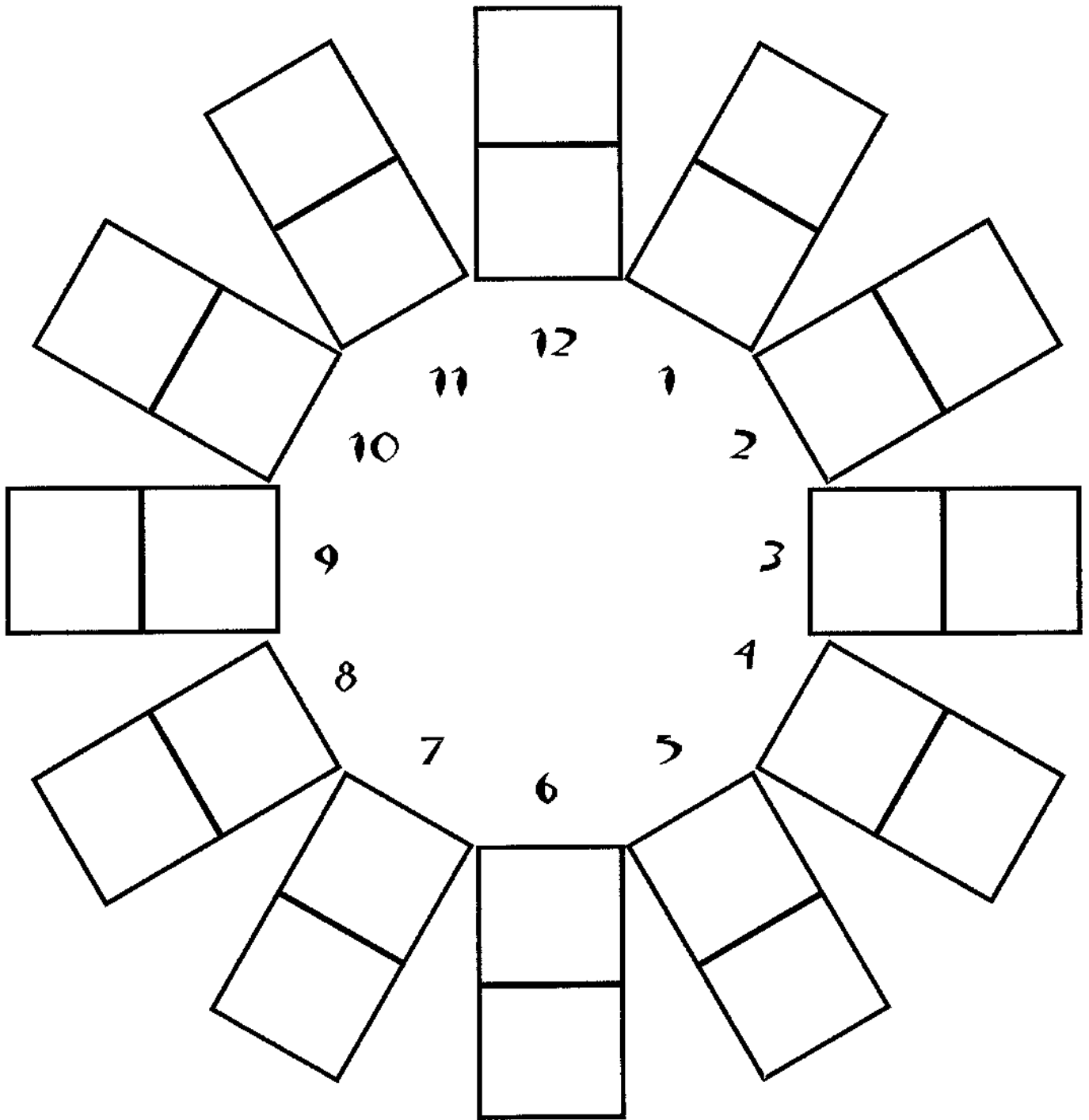
60 - 69 _____

70 - 79 _____

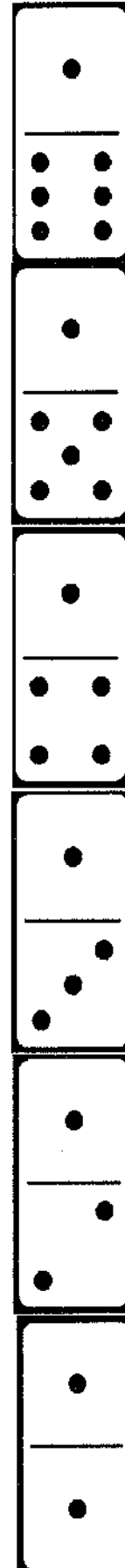
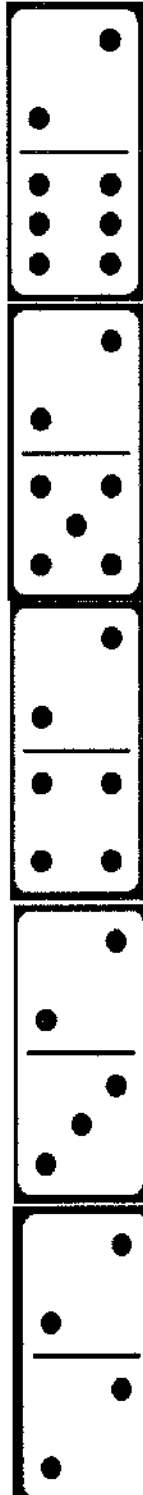
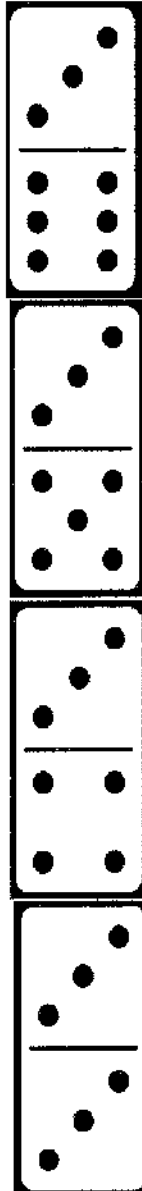
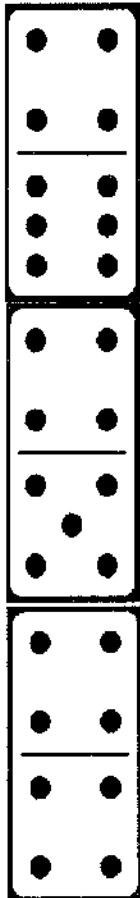
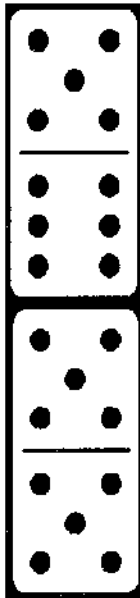
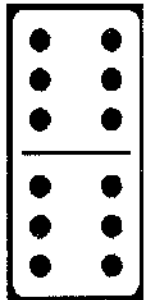
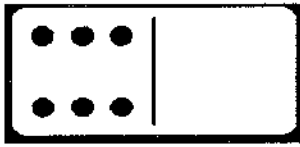
80 - 89 _____

90 - 99 _____

CLOCKOMINOES



Dominoes Outcomes Chart



Domino Least Greatest ©

Box Cars And One-Eyed Jacks

	10's	1's
L	●●●●	●●●●
G	●●●●	●

Example 1

	10's	1's
L	4	6
G	5	1

Example 2

	10's	1's
L		
G		

	10's	1's
L		
G		

	10's	1's
L		
G		

	10's	1's
L		
G		

	10's	1's
L		
G		

	10's	1's
L		
G		

	10's	1's
L		
G		

	10's	1's
L		
G		

	10's	1's
L		
G		

	10's	1's
L		
G		

	10's	1's
L		
G		

	10's	1's
L		
G		

	10's	1's
L		
G		

DOZEN DOMINO DILEMMA

"EQUAL TO"
STACK

PLAYER 1
LESS THAN < 6

PLAYER TWO
GREATER > 6

12 DOMINOES
TO WIN!

12 DOMINOES
TO WIN!

EVEN STEVEN

Even + Even = Even Sum
Odd + Odd = Even Sum

		=	
--	--	---	--

		=	
--	--	---	--

		=	
--	--	---	--

		=	
--	--	---	--

		=	
--	--	---	--

		=	
--	--	---	--

		=	
--	--	---	--

ODD TODD

Even + Odd = Odd Sum

		=	
--	--	---	--

		=	
--	--	---	--

		=	
--	--	---	--

		=	
--	--	---	--

		=	
--	--	---	--

		=	
--	--	---	--

		=	
--	--	---	--

PICK A SIDE

1-12

12-23

UNDERCOVER

	PREDICTION	ACTUAL	SUM	DIFFERENCE
1.	<input type="text"/>	<input type="text"/>	→	<input type="text"/>
2.	<input type="text"/>	<input type="text"/>	→	<input type="text"/>
3.	<input type="text"/>	<input type="text"/>	→	<input type="text"/>
4.	<input type="text"/>	<input type="text"/>	→	<input type="text"/>
5.	<input type="text"/>	<input type="text"/>	→	<input type="text"/>
6.	<input type="text"/>	<input type="text"/>	→	<input type="text"/>
7.	<input type="text"/>	<input type="text"/>	→	<input type="text"/>
<hr/>				<input type="text"/>
				TOTAL SUM

BOX CARS & ONE-EYED JACKS

Games & Strategies In Your Classroom

- **To Teach or Introduce Concepts**
- **Quick Math Warm Ups / Practice & Review Concepts**
- **Math Back Packs / Newsletters / Family Math / Home Connections**
- **After School Programs**
- **Cross-Graded Groupings - Mix Up Time With Reading Buddies**
- **Inside Days / Full Moon Fridays**
- **Centers**
- **Kids Teaching Kids - Peer & Cross-Graded Support**
- **Assessment**
- **Recycling Concepts For Review / Test Preparation**
- **Tutoring**
- **Math Clubs / Inventing Games**
- **Math Themes - Probability, Graphing ...**
- **Don't Lose 5-10 Minutes - Educational Play**

MATH GAMES = POWERFUL TEACHING STRATEGY

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:

boxcars@telus.net

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