Leduc Estates School
Thursday, March 13th, 6:00 - 7:15PM

Family Math Night

With Cards & Dice

This handout is yours to keep. Enjoy playing a game or two a few times each week. You only need a deck of cards and a few dice to play the games.

info@boxcarsandoneeyedjacks.com

P: 780-440-6284 /1-866-342-3386

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King = 0 (because "Zero's The Hero")

Ace = 1 Jack = 11 Queen = 12

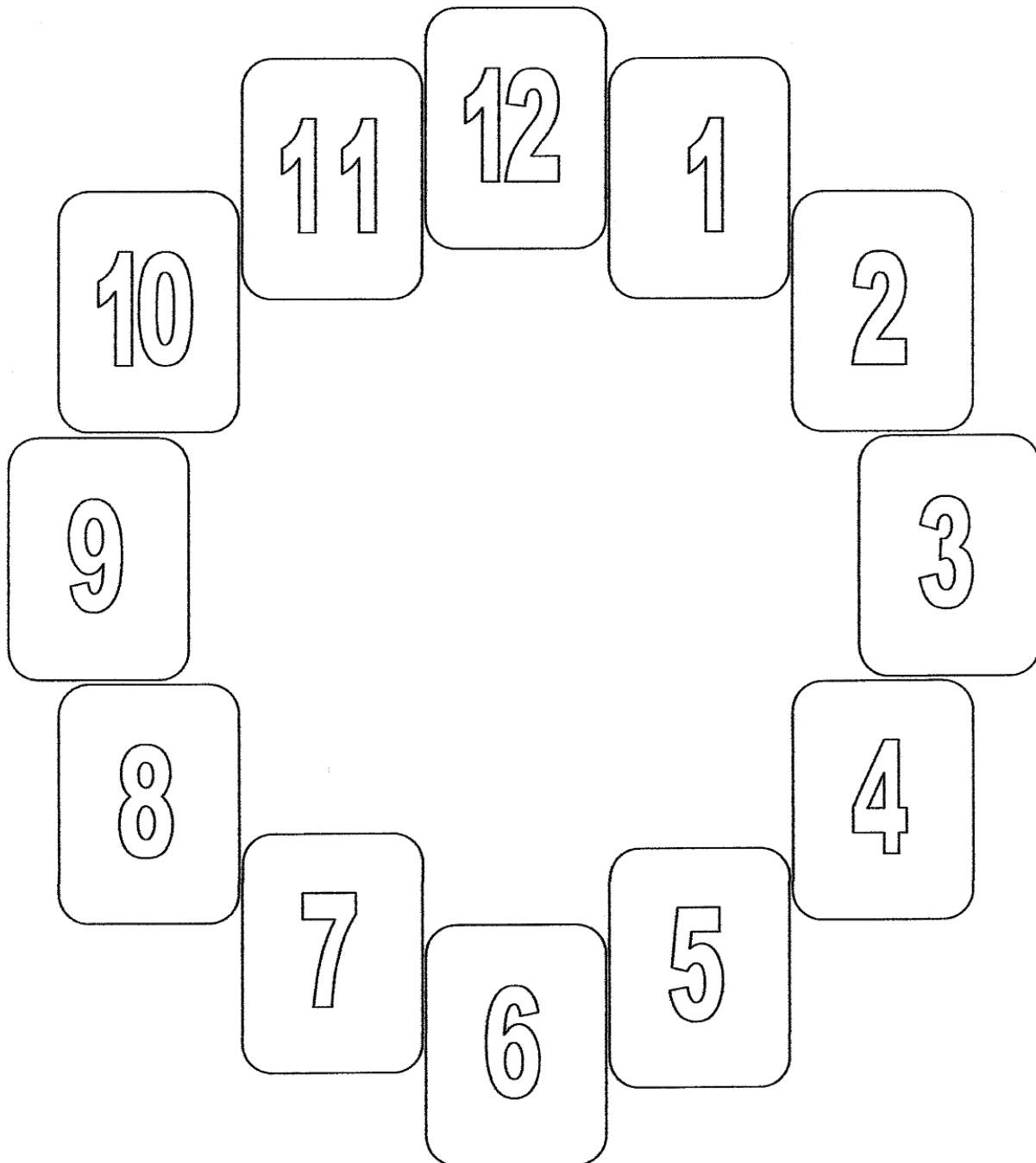**2, 3, 4,…10 = 2, 3, 4, …10**

Joker = Wild Card (0 to 12)

For Place Value Games: use cards 0-9 only

To make games EASIER: use small value cards like 1-5

To make games HARDER: use high value cards like 6-12

ROLL AND WRITE TO 12 GAMEBOARD

|						Number	Dots
						12 twelve	●●●● / ●●●● / ●●●● / ●●●●
						11 eleven	●●●● / ●●● / ●●●●
						10 ten	●●●● / ●●● / ●●●●
						9 nine	●●● / ●●● / ●●●
						8 eight	●●● / ●● / ●●●
						7 seven	●●● / ● / ●●●
						6 six	●●● / ●●●
						5 five	●●● / ● / ●●●
						4 four	●● / ●●
						3 three	● / ● / ●
						2 two	● / ●
						1 one	●

WHAT TIME IS IT MR WOLF?

- Roll 2 regular dice and add them together.
- Use the result to fill in a time on their clock by crossing off the number on the clock, or, if playing with cards, turn over the card with the corresponding number.
- Players alternate turns until only 1 o'clock remains.

Addition Horse Race
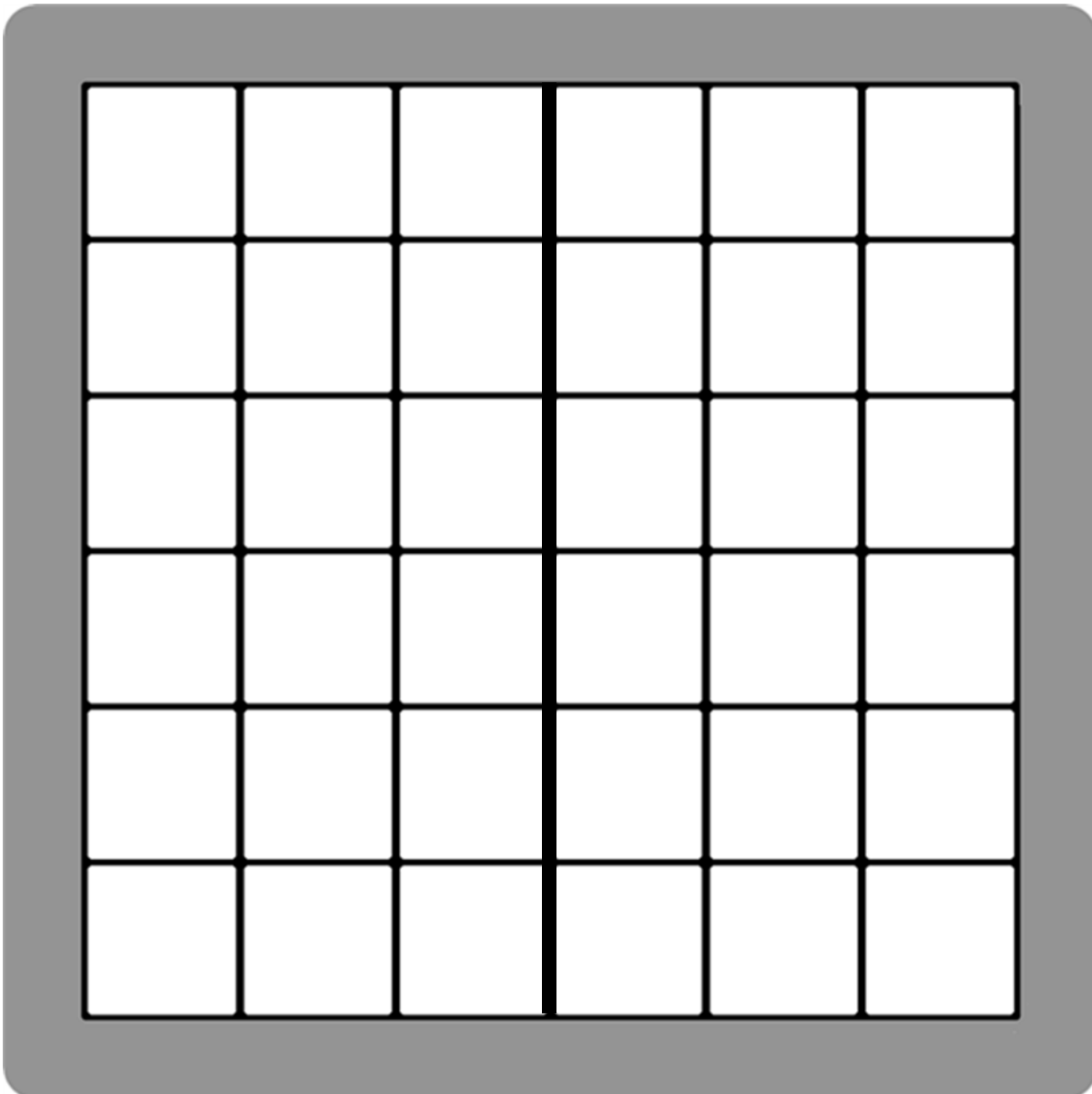
PLAYER ONE   **PLAYER TWO**
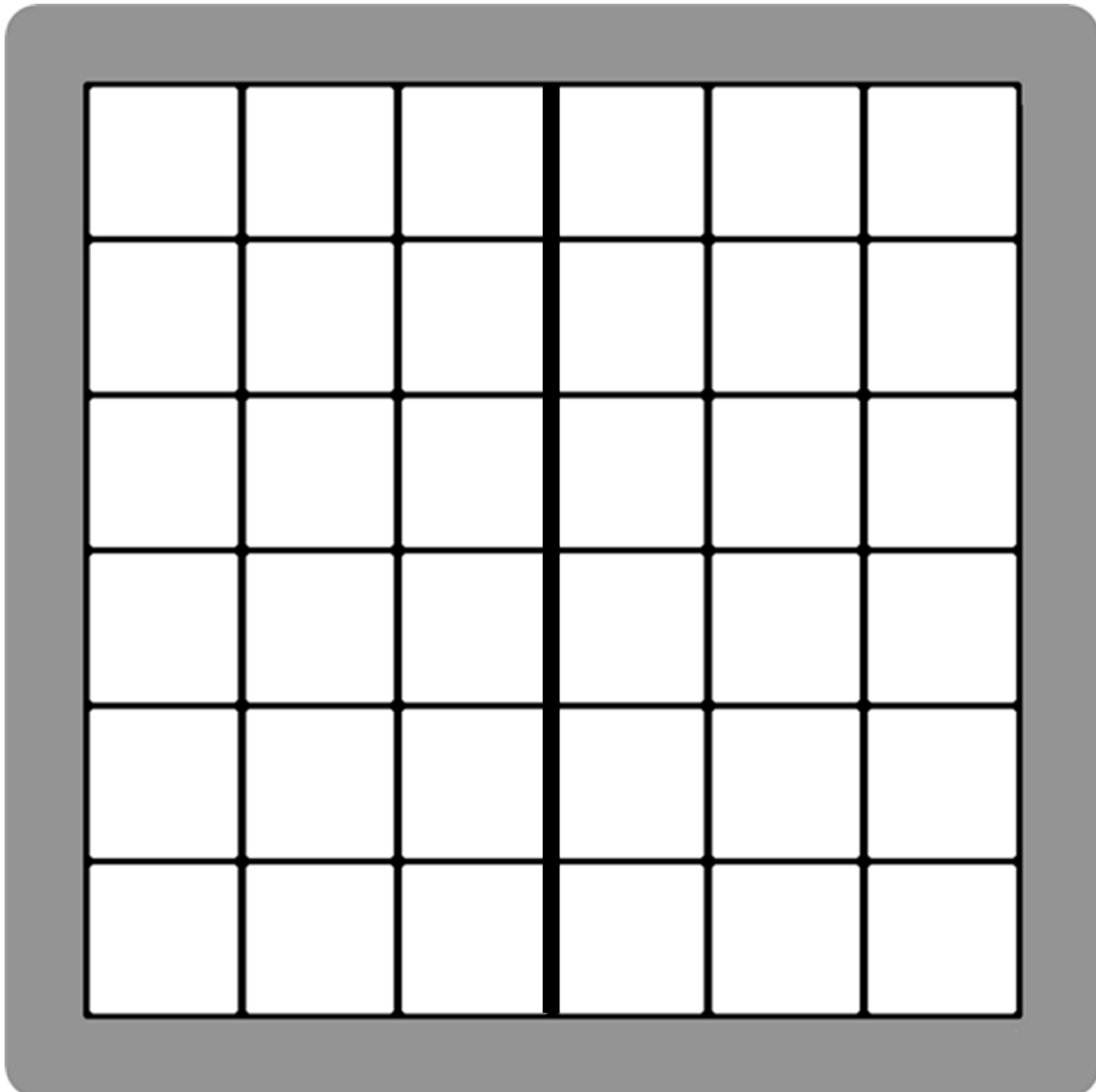
START   **START**

▸ Each player takes 18 dice of own color.

▸ Each player rolls two dice and adds.

▸ Player with the greatest sum places them into their side of the tray, least sum places in lid.

▸ Player with the most dice on their side of the tray at the end of the game wins.

Slam Dunk 36 / 72

PLAYER ONE	PLAYER TWO

Each player takes 18 dice of own color.

For 36 SLAM DUNK: Each player rolls 2 dice and multiplies them for a product.

For 72 SLAM DUNK: Each player rolls 3 dice, adds 2 of the dice for a sum and multiplies that sum by the third die for a product.

Player with the greatest product, places their dice into the black tray. Player with least product place their dice are into the clear lid.

Player with the most dice in their side of the black tray at the end of all the rounds, wins.

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 - 7
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

3 cards are turned upside down.

4 + 3   6 + 2

Player 2 collects all of the cards

Try these Variations:
Place Value War
Subtraction War
3 Addend War
Multiplication War Integer
War Fraction War
Mixed Operations

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).

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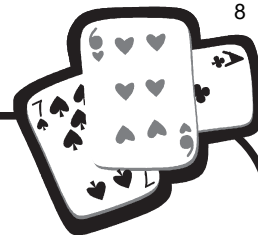
Variations: (1) Multiplication (take out 0s)
(2) 4 Players (one General, 3 soldiers)
(3) Red = neg integers / Black = pos integers

Addition Face-Off

LEVEL: Grades 2 and up

SKILLS: Addition

PLAYERS: 2

EQUIPMENT: 1 deck of cards Ace – 9 (Ace = 1)

GETTING STARTED: Players divide the cards evenly between themselves. Then each player turns two cards over and adds them together. The player with the highest sum wins all the cards. In the event of a tie, players have a "face-off." Each player deals out three more cards face down, then turns over two more cards and adds them together. The player with the highest sum wins all the cards. Play continues until decks are empty, then the player with the most cards wins the game.

EXAMPLE:

Player One   *Player Two*

| 2 3 | $2 + 3 = 5$ | 4 A | $4 + 1 = 5$ |

| 4 3 | $4 + 3 = 7$ | 4 5 | $4 + 5 = 9$ |

Both players draw the same sum, so a face-off starts. Each player deals three face down cards, then draws again. Player Two wins with a sum of 9.

VARIATION: Draw more cards and arrange them as two or three-digit numbers for more difficult math.

| A 5 |
| 3 |

Three cards: a two-digit number (15) added to a single-digit number (3).

Or...

| 5 3 4 |
| 2 3 |

Five cards: a three-digit number (534) added to a two-digit number (23).

FACT FEUD "2"

LEVEL: Grade 3 and up

SKILLS: multiplication facts to 81

PLAYERS: 2

EQUIPMENT: cards (Ace=1) - 9

GOAL: to multiply to get the highest product and collect the most cards

GETTING STARTED: Players decide (or the teacher directs) the particular fact to practice (eg ×7, ×4, ×8, etc.). Once the constant factor is determined, that card is placed between the two players. Players then divide the remaining cards evenly between themselves. Each player turns over one card and multiplies that card by the constant factor in the middle. The player with the highest product collects both cards. Players must verbalize their math sentence.
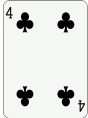
EXAMPLE:

CONSTANT

PLAYER ONE   This card stays   PLAYER TWO
              the same the
              whole game.

A 6 is drawn and determined as the constant factor. Player One flips an 8. Player Two flips a 4. Player One says, "8 × 6 = 48". Player Two says, "4 × 6 = 24". Player One would collect all of the cards and say "48 is greater than 24".

MATH TALK

In the event of a tie (ie. both players have the same product), each player deals out three more cards face down and then turns another card face up. That card is multiplied by the constant factor and the highest product wins all of the cards (except the constant factor card). Play continues for a set period of time or until one player has collected all the cards.

JOURNAL WORK AND EXTENSIONS:

1. This is a great game to practice quick recall of basic facts that will help set the foundation for division later. Have students verbalize each fact out loud to better reinforce the learning and help with memorization.

2. While playing the game, have students write the commutative fact for each equation. Did the product of the two numbers change? Why or why not?

PLACE VALUE FACE OFF

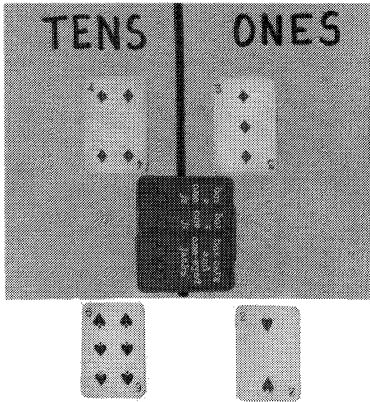|	
LEVEL:	Grade 1
SKILLS:	read, compare and order numbers to 100, variation to 999
PLAYERS:	2
EQUIPMENT:	cards (Ace=1) - 9, gameboard or place value mat (page 118-119); for variation use 0-9 dice, 00-90 dice
GOAL:	to be the player with the greatest number and collect the most cards by the end of the game

GETTING STARTED: Players divide cards evenly between themselves. Each player turns over two cards and places them onto the gameboard. The first number turned over is the tens number and the second is the ones. Both players say their numbers. Have them verbalize, for example, "six tens and two ones equals sixty-two". The player with the greatest number gets all cards. In the event of a TIE (ie. each player has the same number) FACE OFF is declared. First, each player places three cards face down. Then, each player turns over two cards, building a two digit number. The player with the greatest number gets all of the cards. Play continues until one player has collected all of the cards.
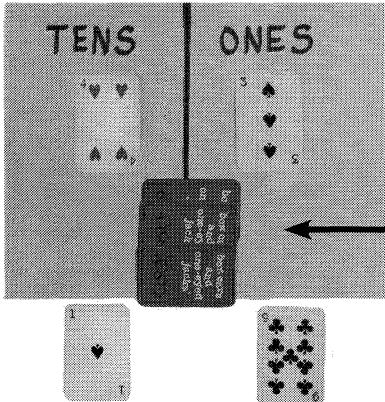
EXAMPLE:

PLAYER ONE

(43)

"forty-three"

FACE OFF IS DECLARED!

PLAYER TWO

(43)

"forty-three"

THREE CARDS FACE DOWN FOR "TIE BREAK"

6 tens   2 ones   1 ten   9 ones
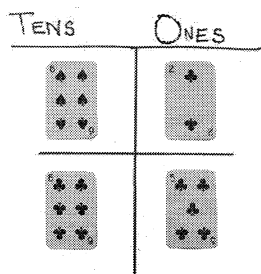
(62)   (19)

"sixty-two"   "nineteen"

MATH TALK

Player One verbalizes "sixty-two is greater than nineteen because 6 tens are greater than 1 ten" and collects all of the cards.

NOTE: Rules can be changed to play for LEAST number winning.
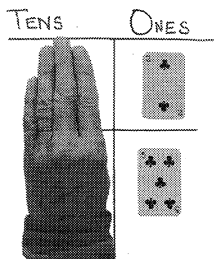
PLACE VALUE FACE OFF

TEACHING TIP: Always have students sit side by side. When students have the same value in the tens place, have them verbalize:

62, 65

6 tens = 6 tens

"We have to compare ones value." ⟶

"65 is greater as 5 ones are greater than 2 ones."

We have the students slide their hands over the tens place value if tied, to compare the ones.
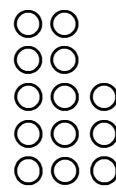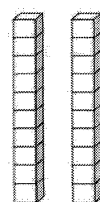
JOURNAL WORK AND EXTENSIONS:

1. Have students record their rounds on the recording sheet. Have them circle the greater number.

2. On a separate sheet have students draw 3 of their winning numbers using base ten symbols.
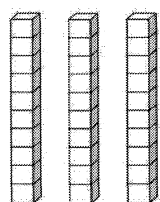
= 33

three tens + three ones

Have students decompose their numbers as well.

"STILL EQUALS"

= 33

two tens + thirteen ones

VARIATIONS:

1. This same game can be played using 0-9 dice on the gameboard on page 122.
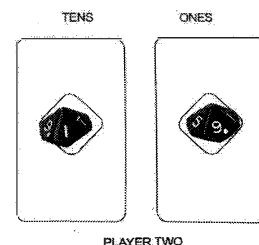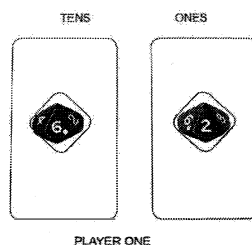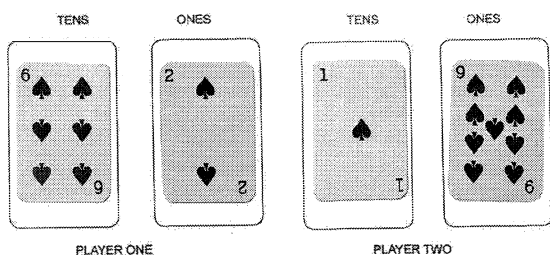
2. Place Value Face Off to 999. Players divide cards evenly between themselves. Each player turns over three cards. The first number turned over is the hundreds, second is tens, and the third is ones. Players verbalize their numbers. The player with the greatest number gets all the cards. In the event of a tie, a FACE OFF is declared. Players flip over three new cards and verbalize their number. The player with the greatest number gets to keep all the cards. Play continues until one player collects all the cards.

100's 10's 1's Horse Race

PLAYER ONE			PLAYER TWO		
HUNDREDS	TENS	ONES	HUNDREDS	TENS	ONES

▸ Each player takes 18 dice of the same color.
▸ Each player rolls three dice and creates a 100s, 10s, 1s number.
▸ The player with the greater number places the dice into their side of the tray.
▸ The player with the least number places their dice into the lid.
▸ The player with the most dice on their side of the tray at the end of the game wins.

ROLL ON PLACE VALUE

	HUNDRED THOUSANDS	TEN THOUSANDS	THOUSANDS	HUNDREDS	TENS	ONES
ROUND ONE — PLAYER ONE						
ROUND ONE — PLAYER TWO						
ROUND TWO — PLAYER ONE						
ROUND TWO — PLAYER TWO						
ROUND THREE — PLAYER ONE						
ROUND THREE — PLAYER TWO						

The goal of the game is to create the largest number. Players take turns rolling a die, placing it into the tray and announcing it's place value for that roll. After 6 rolls, players compare numbers. A point is earned by the player with the largest number. A Place Value Systems die is rolled to identify a specific place value (for example 100's) . A second point is earned by the player with the highest place value in that place. A third "upside down bonus point" is awarded to the player with the biggest number when the tray is rotated 180 degrees and the numbers are compared.
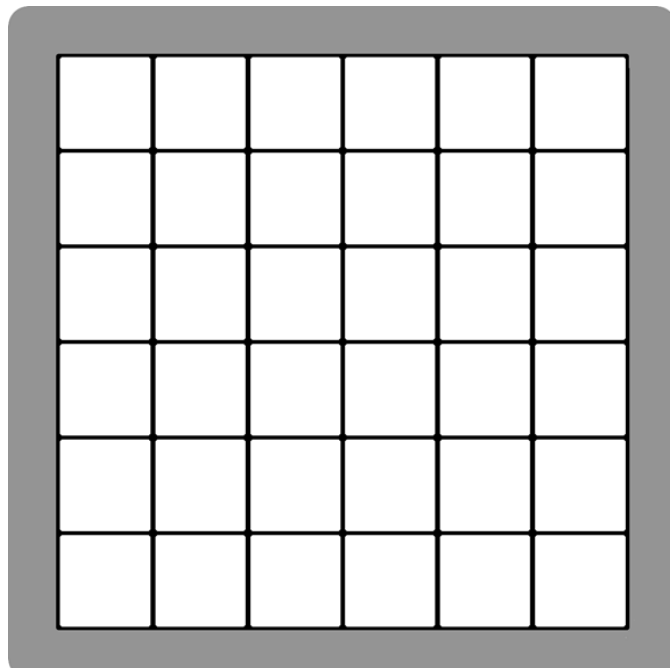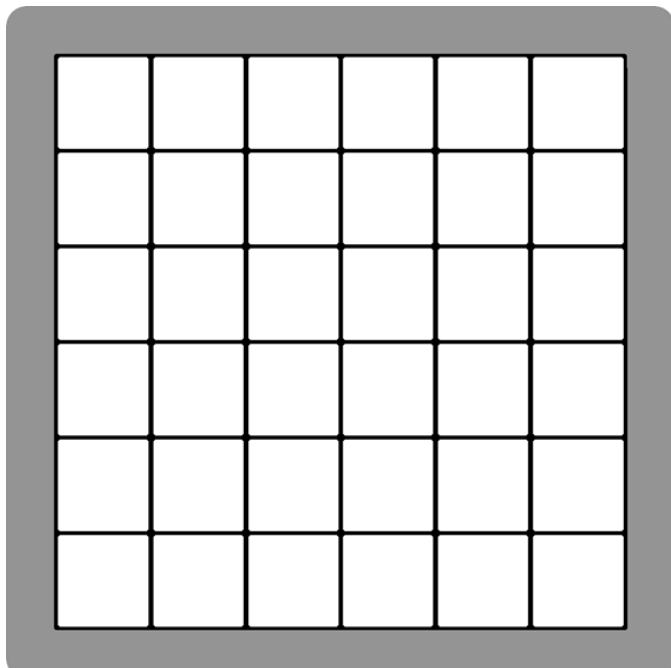
Object of the Game: Get all the dice into the tray with no dice leftover.

Preparation: Partners "Super Mush" the dice for about 10-15 seconds, thoroughly mixing them. Next, partners choose a "Target Number" (randomly / by rolling a die / flipping over a card).

How to Play: Partners work together and use 2, 3, 4 or 5 dice to create a math sentence that equals the target number. They put the dice into the tray. Partners again use between 2 to 5 dice to create another math sentence that equals the target number and place those dice into the tray as well. Partners continue to select dice to make math sentences until all the dice are in the tray or until they can't make a math sentence that equals the target.

JUNIOR STAR TRAVELLER

LEVEL: Kindergarten - Grade 1

**SKILLS:**   solve and add within 12

PLAYERS: cooperative groups, pairs or solitaire

EQUIPMENT: cards (Ace=1) - 6 (24 cards in all), 2 regular dice; for variation - use cards (Ace=1) - 9 or 12 sided die

GOAL: to remove all cards before getting 5 strikes

GETTING STARTED:

Players build a 6 x 4 grid with all cards face up. The object of the game is for the pairs or groups to work together to take away all of the cards before getting the five points of a star colored in.
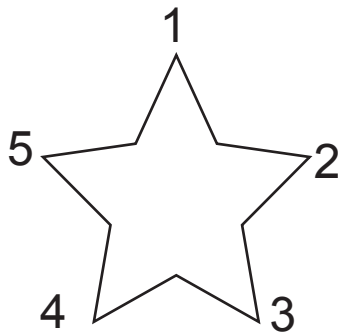
A player rolls the dice. The player or cooperative group may then take away any card or combination of cards that equals the roll and that appears at the bottom of any column. Players on a team work together to find the best play. Addition, subtraction or a combination can be used, but a maximum of only 3 cards can be removed in one turn.

2	1	3	3
4	6	3	1
3	5	6	6
6	2	5	4
5	1	4	5
X	2	X	2

SOME SAMPLE PLAY:

Roll 1 = 5. Player takes 1 and 4 from bottom. This leaves 5, 2, 4, 2 exposed for the next roll. Another choice could have been: 1, 2 and 2.

In the event that a card or combination of cards cannot be found, players color in one point of their star. Play continues until all cards are removed or the whole star is colored in. Remember: cards must be removed from the bottom of the grid.

MATH TALK

As players gain more experience with this game, they will develop more strategies to maximize their chances. Begin with number recognition, then move to adding combinations, and subtracting combinations.

MATH JOURNAL WORK AND EXTENSIONS:

1. Have students glue their star into their math journals. As the game is played corners are colored in. Have students record the roll and numbers (cards) removed.

2. After the game is over, debrief with the students which numbered cards were the most difficult to get rid of and why? Repeat this but ask which are the easiest to get rid of and why.

SWEET SIXTEEN

LEVEL: Grade 4 and up

SKILLS: mixed operations, problem solving

PLAYERS: 1 (solitaire) or whole class in cooperative teams

EQUIPMENT: 1 thirty-sided die, cards Ace -King (Ace =1, Jack =11, Queen = 12, King = 0)

GETTING STARTED: All teams build a four x four grid with sixteen random cards, face up.

The goal of the game is for each team to remove all the cards from their grid. All cards remaining at the end of a round equal their face value score AGAINST the team, (ie 4 and 3 left - score against =7) The lowest and best possible score per round is zero.

To begin play the teacher rolls a target number for the first round with the die. This number will be used by all cooperative teams. Teams now begin finding combinations that equal the largest number rolled - all operations may be used. Players may take off two, three, four or five card combinations.

Cards drawn to randomly form grid as follows:

Variations:

1 - Have a fraction component to at least two of their math sentences for example multiply or divide by a fraction.

2 - Require that at least two sentences have two or more different operations.

3 - Make "Red" cards negative integers and "Black" cards as positive integers.

Record Your Math Sentences   Target ____

1 _____

2 _____

3 _____

4 _____

5 _____

6 _____

7 _____

8 _____

What strategies did you use? ie., What did you keep in mind while figuring out math sentences to help you get all/most of the cards off the table?

_____

_____

_____

_____

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

Adapted From Dice Works page 44. Use cards 0 (K) through 9. Mix the cards up. Players take turns flipping over two cards at a time. One card is located at the top, the other is located at the left side. Players trace their fingers from the two numbers to the sum (answer) on the board. For example 3 and 7 are flipped over. 3 is placed on the top and 7 is placed on the left.   The player runs their left finger along the "7" row and runs their right finger down the "3" column" until they meet at the "10". They place a chip at that location. The player then switches the cards and places the 7 at the top and the 3 on the left side. The player runs their left finger along the "3" row and runs their right finger down the "7" column until they meet at "10". They place a chip at that location.   Most turns will have players place two chips. Players continue to alternate turns until one player places a chip that completes 3-in-a-row, 4-in-a-row or 5-in-row Tic Tac Toe. When this happens, the player removes the chips for that Tic Tac Toe and places them into their "point pile". Tic Tac Toes usually occur two at a time. **Stealing points -** If a player has a turn where an answer already has a chip on it, the player.removes that chip, places it into their point pile and then places a new chip on the answer. For example, if a player flipped a 3 and 7 and the 10 answer already has a chip on it.

Multiplication Board

	1	2	3	4	5	6	7	8	9	10	11	12
1	1	2	3	4	5	6	7	8	9	10	11	12
2	2	4	6	8	10	12	14	16	18	20	22	24
3	3	6	9	12	15	18	21	24	27	30	33	36
4	4	8	12	16	20	24	28	32	36	40	44	48
5	5	10	15	20	25	30	35	40	45	50	55	60
6	6	12	18	24	30	36	42	48	54	60	66	72
7	7	14	21	28	35	42	49	56	63	70	77	84
8	8	16	24	32	40	48	56	64	72	80	88	96
9	9	18	27	36	45	54	63	72	81	90	99	108
10	10	20	30	40	50	60	70	80	90	100	110	120
11	11	22	33	44	55	66	77	88	99	110	121	132
12	12	24	36	48	60	72	84	96	108	120	132	144

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Multiplication Tic Tac Toe
- ‣ Player one rolls 2 x 0-9 or 2 x 1-12 dice and finds the product (eg 4x6=24; 6x4=24)
- ‣ Cover spaces with bingo chips (one space only would be covered if doubles are rolled)
- ‣ Player Two takes their turn. Players continue to alternate turns
- ‣ Build Tic Tac Toe, three or more in a row horizontally, vertically or diagonally
- ‣ One point per chip and remove from board so spaces are open again
- ‣ Roll your partner's space and capture for 2 points per chip
- ‣ Play for a set period of time