CCTCA 2026

Game Changers

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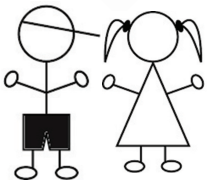
PRIMARY INVENT-A-GAME

NAME YOUR GAME

CONCEPTS:

What MATH is in your game?

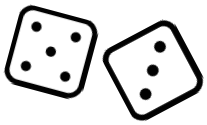
PLAYERS:



HOW MANY are needed to play your game?

* competitive (vs)
* cooperative

EQUIPMENT:



What MATERIALS are needed to play your game?

GOAL:

How does the game FINISH?

* how does a player win?
* what are cooperative players trying to achieve?

GETTING STARTED:

HOW do you play the game?

* full description of the rules and to play
* explanation of scoring if needed

EXAMPLE:

Play out a round to SHOW the game. Draw or record.

TEACHING TIPS:

Do you have any useful TIPS for players to help them be more successful?

MATH TALK:

What should players be SAYING out loud as they play?

JOURNALS:

WRITE a question for players to answer in words or ILLUSTRATE with a drawing.

INVENT-A-GAME ASSIGNMENT

Use the following format:

GAME TITLE – NAME YOUR GAME

Level:	What grade is it for? Check out the skills in the curriculum guide to make sure you use the correct math vocabulary.
Skills / Concepts:	What math skills and concepts are integrated into your game?
Players:	How many?
Equipment:	What manipulatives are needed?
Getting Started:	This is a full description of your game's goals, rules and play, written in *complete sentences*. Make sure to describe how the game ends and how points are accumulated (if scoring is necessary).
Example:	If possible, you should play out a few rounds of your game to provide an example and to work out your directions in "*Getting Started"* to get them as clear as possible for the reader/participant.
Variations:	How can you differentiate the game to make it easier or more challenging, integrate other math concepts?
Teaching Tips:	Strategies and other helpful tips.
Thought Provokers:	Design a few questions to have players answer in their math journals.

Marking:

Minimum is doing the Level, Skills, Players, Equipment, Getting Started and Example. Doing the other components will increase your marks!

DUE DATE: _____

TOTAL: /30

MATH SHAKERS

MAKE A TEN SHAKERS

LEVEL: Kindergarten - Grade 2

SKILL: fact fluency, subitizing, making a sum of 10

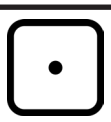
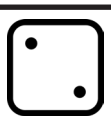
SET UP: vertical or horizontal, 1 die in each slot, 1 shaker for 2 students

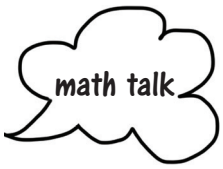
PLAYERS: 2 (cooperative pair) or solitaire

GOAL: call out number, immediately give missing addend to equal a sum of 10

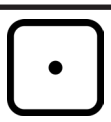
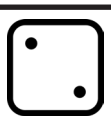
GETTING STARTED:

For solitaire or pair work have students shake a container, hold it still, then say out loud their numbers as they work down the slots:

SEE	SAY
	"4"
	"3"
	"3"
	"6"
	"1"
	"2"
	"4"



Have students then go back through, working from the top, giving the missing addend to equal 10.

SEE		SAY
	+6	"10"
	+7	"10"
	+7	"10"
	+4	"10"
	+9	"10"
	+8	"10"
	+6	"10"

Have students work toward full fluency, see  say "4 + 6 = 10"

Have students record their "ten facts" using the recording sheets when ready.

MAKE A TEN

SEE	+	?			SEE	+	?			SEE	+	?		
	+		=	10		+		=	10		+		=	10
	+		=	10		+		=	10		+		=	10
	+		=	10		+		=	10		+		=	10
	+		=	10		+		=	10		+		=	10
	+		=	10		+		=	10		+		=	10
	+		=	10		+		=	10		+		=	10
	+		=	10		+		=	10		+		=	10

MAKE A TWENTY

SEE	+	?			SEE	+	?			SEE	+	?		
	+		=	20		+		=	20		+		=	20
	+		=	20		+		=	20		+		=	20
	+		=	20		+		=	20		+		=	20
	+		=	20		+		=	20		+		=	20
	+		=	20		+		=	20		+		=	20
	+		=	20		+		=	20		+		=	20
	+		=	20		+		=	20		+		=	20

Make Decades

My Shakes

Tens	Ones						What do you add to get to the next decade?		
		=	34	+	6	=	40
		=		+		=	
		=		+		=	
		=		+		=	
		=		+		=	
		=		+		=	
		=		+		=	

Tens	Ones						What do you add to get to the next decade?		
		=		+		=	
		=		+		=	
		=		+		=	
		=		+		=	
		=		+		=	
		=		+		=	
		=		+		=	

SEVEN UP - ADD UP

LEVEL: Grade 2 and up

SKILL: addition with regrouping

SET UP: vertical or horizontal, 1 die in each slot, 1 shaker per student

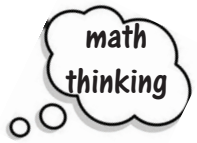
PLAYERS: 2 (1 vs 1) or solitaire

GOAL: to create the greatest sum with one shake

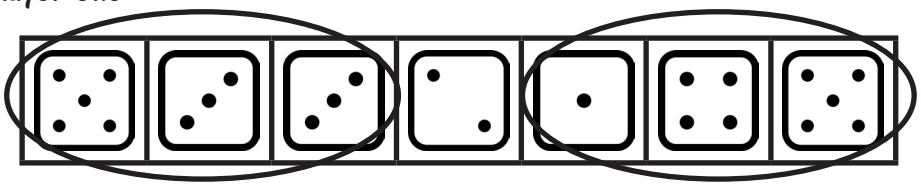
GETTING STARTED:

Each student needs their own shaker. Have students shake until STOP is called. Players then add up all 7 dice in their shaker and calculate the sum. Greatest sum scores 1 point. Encourage students to use patterns to calculate their sums efficiently. As students work with their shakers, observe which students use:

1. names for 10
2. doubles
3. doubles +1 or +2
4. work from known facts



Player One



5+6= double+1
11

+2

5+4+1=
"name for 10"

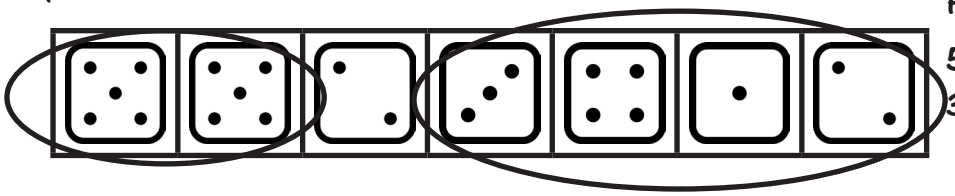
Player One calculates as follows:

5 + 3 + 3 = double + 1 5 + 6 = 11
5 + 4 + 1 = name for 10 + 10
+ 2

WINNER!

My Sum = 23

Player Two



double 5 =
10

+2

5 + 5
10

Player Two calculates as follows:

5 + 5 = double = 10
3 + 2, 4 + 1 = name for 10 + 10
+ 2

My Sum = 22

SEVEN UP - ADD UP RECORDING SHEET

Math Shakers (K-3) BK27

Shake # My 7 numbers _____ _____ _____ _____ _____ _____ _____ My Sum ☐

How I grouped my addends → Strategy I used

- ________________ → ________________
- ________________ → ________________
- ________________ → ________________
- ________________ → ________________

Shake # My 7 numbers _____ _____ _____ _____ _____ _____ _____ My Sum ☐

How I grouped my addends → Strategy I used

- ________________ → ________________
- ________________ → ________________
- ________________ → ________________
- ________________ → ________________

Shake # My 7 numbers _____ _____ _____ _____ _____ _____ _____ My Sum ☐

How I grouped my addends → Strategy I used

- ________________ → ________________
- ________________ → ________________
- ________________ → ________________
- ________________ → ________________

Shake # My 7 numbers _____ _____ _____ _____ _____ _____ _____ My Sum ☐

How I grouped my addends → Strategy I used

- ________________ → ________________
- ________________ → ________________
- ________________ → ________________
- ________________ → ________________

CARDS

NINE PLUS FACE OFF

LEVEL: open ended - Elementary

SKILLS: addition facts, adding with 9, double digit addition

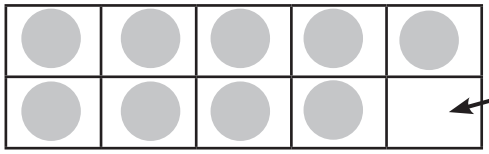
PLAYERS: 1 - 2

EQUIPMENT: cards (Ace=1) - 9, gameboard

GOAL: to add 9 to a number fluently

For many students it will be important to reteach with manipulatives the concept of adding 9. Have students use bingo chips and ten frames to build this understanding as follows:

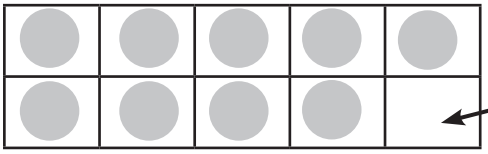
STEP ONE: Build 9



STEP TWO: Add 3. 9 + 3

STEP THREE: Make a 10 Becomes 10 + 2 (12)

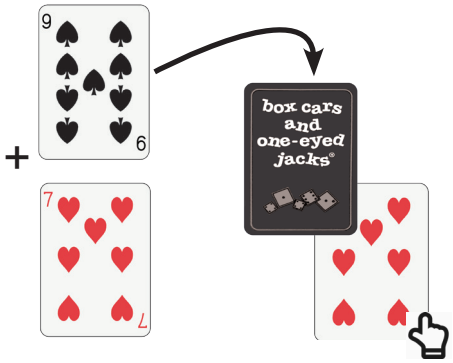
STEP ONE: Build 9



STEP TWO: Add 5. 9 + 5

STEP THREE: Make a 10 Becomes 10 + 4 (14)

Once students have practice with this we can demonstrate this concept using cards. Have students pull out a nine card and use for overlapping.



Turn nine card over to create a "ten", overlapping one symbol on the drawn card. Count "10 …11, 12, 13, 14, 15, 16. 9 + 7 = 16."

Students will come to see that "+9" becomes "-1" on the second addend to come to the answer.

GETTING STARTED: The object of this game is to solidify the rule of +9. Each player has a gameboard and a pile of cards face down. Each player takes one card, puts it in the space on the gameboard and adds this addend to 9. The player with the greater sum wins the cards.

PLAYER ONE

+ 9

= 15

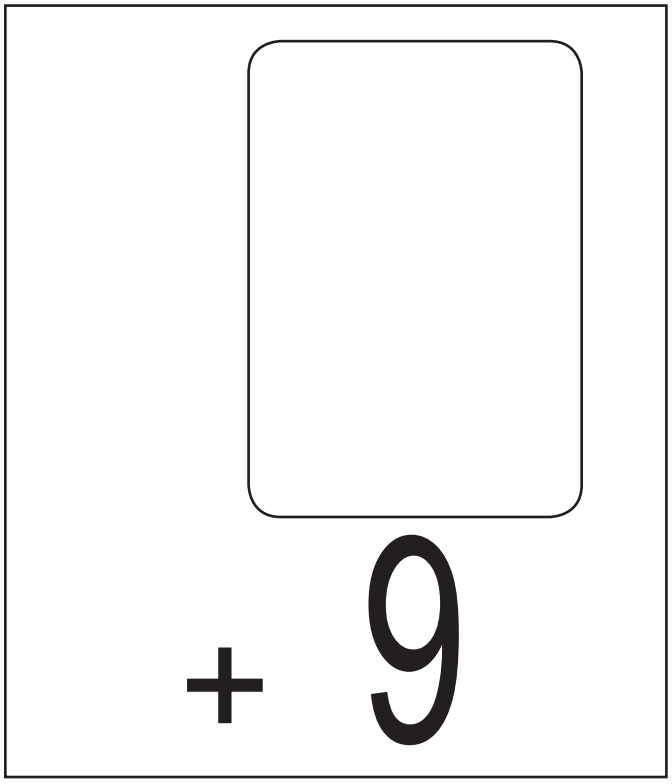
PLAYER TWO

+ 9

= 11

Player One collects the cards.

NINE PLUS FACE OFF GAMEBOARD I



= _____ = _____

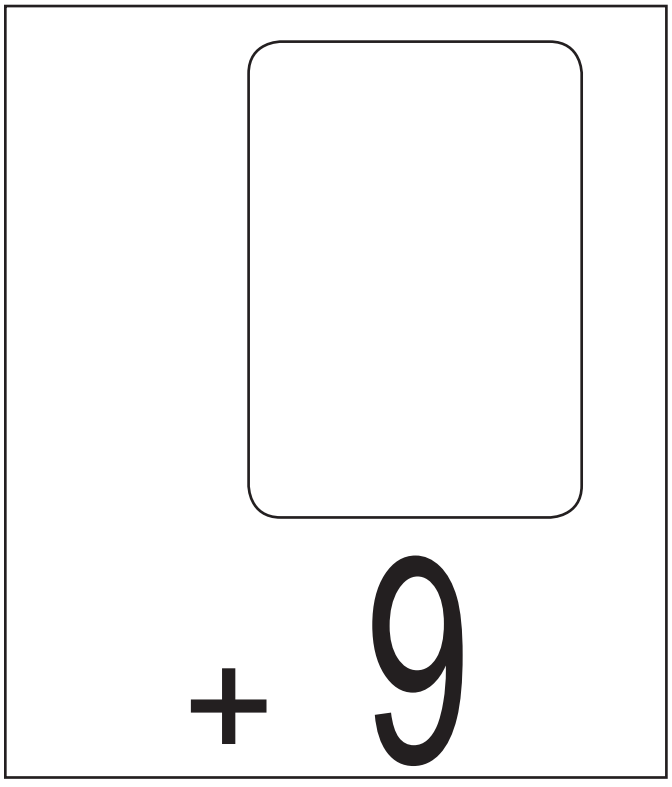
= _____ = _____

= _____ = _____

= _____ = _____

= _____ = _____

= _____ = _____



= _____ = _____

= _____ = _____

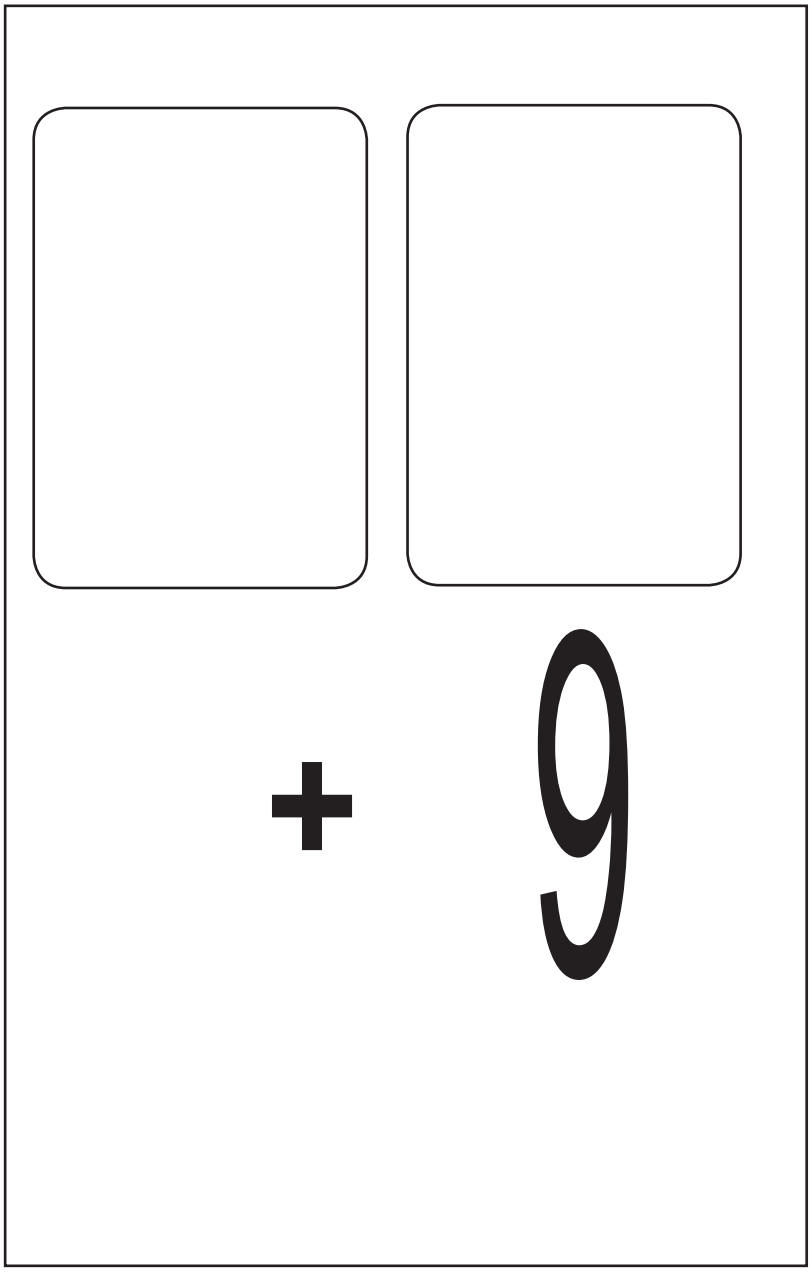
= _____ = _____

= _____ = _____

= _____ = _____

= _____ = _____

NINE PLUS FACE OFF GAMEBOARD II



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SALUTE

LEVEL: Grade1-2

SKILLS: missing addend, problem solving (for missing factor)

PLAYERS: 3 cooperative - 1 general/referee, 2 players

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

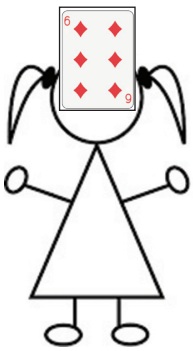
GOAL: to identify the missing addend (card) on your head

GETTING STARTED: One player is designated as the "General" and will be providing the SALUTE signal and calling the sums for players. The other two players divide the cards and place them face down. The General calls "SALUTE!" and both players take a card from the top of the deck and, without looking at it, place it on top of their heads so that the other player can see it. The general must add the two cards and call the sum out loud.

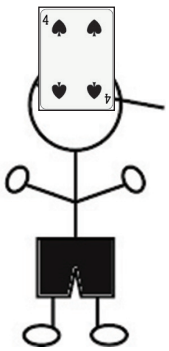
EXAMPLE:

Players "Salute" - both players draw a card and place on their heads. The General says "Your sum equals 10, what's on your head?"

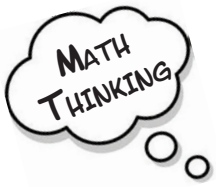
The players then use the sum and the number on the card they can see on the other player's head to try and figure out their own card.



Player One



Player Two



Player One "The sum is 10, I see 4. 10 - 4 = 6, I think 6 is on my head."

Player Two "The sum is 10. I see 6. I am going to count on from 6…7-8-9-10. I had to count on 4 more, I must have a 4. 6 + 4 = 10.

Players should let the group know the strategy they used to figure out the number on their head.

The General calls "Salute" again, and without looking, both players draw a new card and place them on their heads. The General says the sum out loud and players again try to figure out their card value. Have players change roles so that each will have a chance to be the General.

JOURNAL WORK AND EXTENSIONS:

1. After practicing several rounds have students complete the Salute Recording Sheet (see page 68).
2. Have students describe three strategies they could use to figure out their number. They can write or illustrate their answers.
3. Use the skills checklist found on page 69 to help you assess student's understanding.

TO SUM IT UP

LEVEL: Grade 3 and up

SKILLS: adding three-digit numbers

PLAYERS: 2 or more, or teacher vs whole group

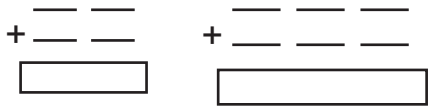
EQUIPMENT: cards (Ace=1) - 9, one recording sheet for each player

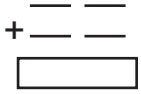
GOAL: to make the greatest sum

GETTING STARTED: The deck is placed face down. A card is drawn and is placed face up. Each player selects a space on their gameboard and writes the number of this card on it. Eight more cards are drawn one at a time and players proceed to fill in their recording sheets. Once all spaces are filled in, players complete their addition. The player with the greatest sum is the winner of that round and scores one point. In the event of a tie, each player receives one point. The winner is the one with the most points after a set number of rounds or a set time limit.

VARIATION:

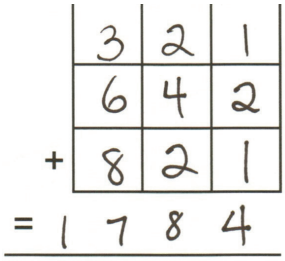
1. Vary the number of cards to modify the level of difficulty. It is easy to have all students play the same game but differentiate the recording sheet to present the appropriate challenge.

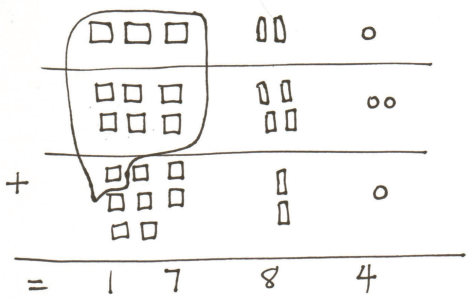


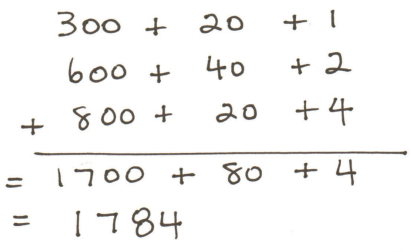
2. If you do not want any regrouping work, use cards (Ace=1) - 4 only and start with a simplified  recording sheet.

JOURNAL WORK AND EXTENSIONS:

1. As players have more experience with this game, they will develop strategies to maximize their chances. In their math journals, have students write what strategies they used to create the greatest sum.
2. After the game has been played, have students look back at their game sheet and rearrange any of their numbers that did not make the greatest possible sum then write their new equation beside their original one.
3. Have students take their sums and draw the place value representation:

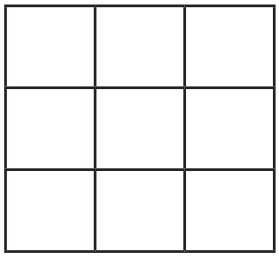




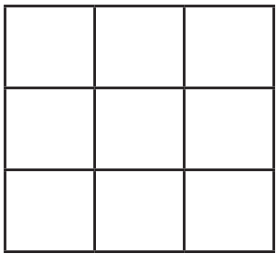


TO SUM IT UP RECORDING SHEET I

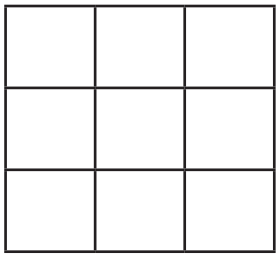
PLAYER ONE



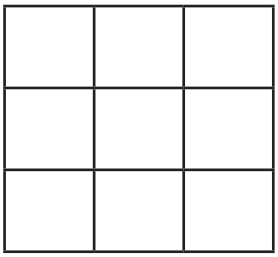
PLAYER TWO



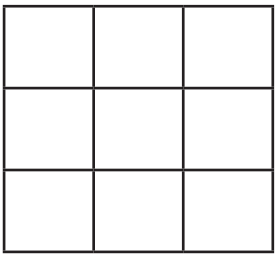
PLAYER THREE



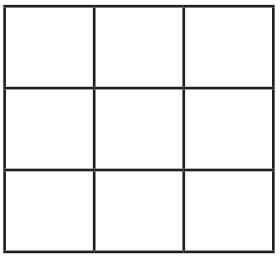
PLAYER ONE



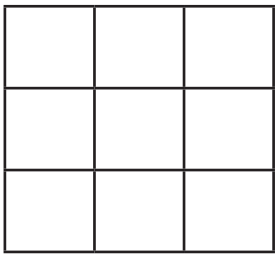
PLAYER TWO



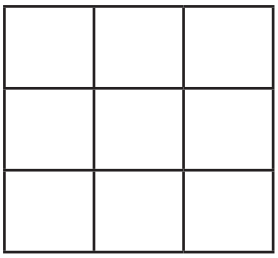
PLAYER THREE



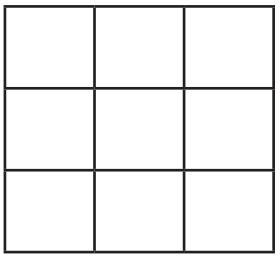
PLAYER ONE



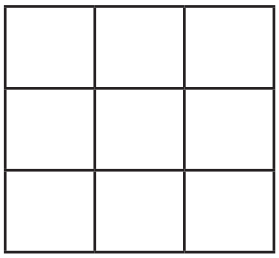
PLAYER TWO



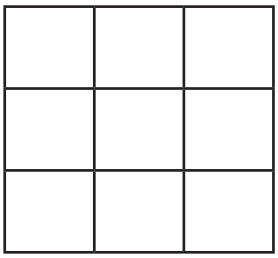
PLAYER THREE



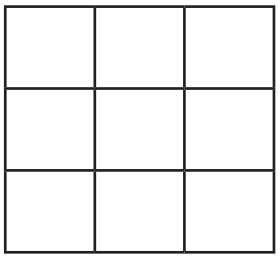
PLAYER ONE



PLAYER TWO



PLAYER THREE



TO SUM IT UP RECORDING SHEET II

PLAYER ONE

+

= ____________________

PLAYER TWO

+

= ____________________

PLAYER THREE

+

= ____________________

PLAYER ONE

+

= ____________________

PLAYER TWO

+

= ____________________

PLAYER THREE

+

= ____________________

PLAYER ONE

+

= ____________________

PLAYER TWO

+

= ____________________

PLAYER THREE

+

= ____________________

PLAYER ONE

+

= ____________________

PLAYER TWO

+

= ____________________

PLAYER THREE

+

= ____________________

PLAYER ONE

+

= ____________________

PLAYER TWO

+

= ____________________

PLAYER THREE

+

= ____________________

WHAT'S THE DIFFERENCE

All Hands On Deck (3-5) BK30

LEVEL: Grade 3 and up

SKILLS: subtracting three-digit numbers

PLAYERS: 2 or more, or teacher vs whole group

EQUIPMENT: cards (Ace=1) - 9, one recording sheet for each player

GOAL: to make the least difference

GETTING STARTED: The deck is placed face down. A card is drawn and placed face up. Each player selects a space on their recording sheet and writes the number of this card on it. Five more cards are drawn and players continue to fill in their recording sheets. Once all spaces are filled in, players complete their subtraction. The player with the least difference is the winner for that round and scores one point. In the event of a tie, each player receives a point. Any negative difference causes that player to strike out for that round. As players have more experience with this game, they will develop strategies to maximize their chances of creating the least possible difference.

EXAMPLE:

PLAYER ONE

	5	2	7
−	4	9	6
=		3	1

PLAYER TWO

	6	7	9
−	5	2	4
=	1	5	5

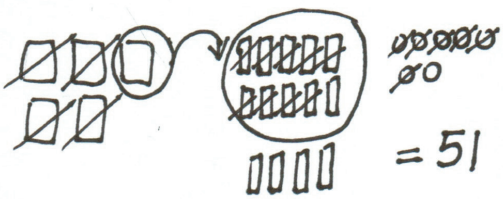
31 is the least difference,
Player 1 scores one point.

VARIATION:

1. Vary the number of cards to modify the level of difficulty.

JOURNAL WORK & EXTENSIONS:

1. Have players take their three least differences and draw the subtraction to match.



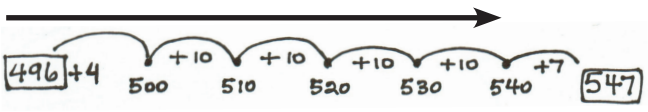
2. Have students round their numbers and estimate their three differences.

547 ⟶ 550
− 496 ⟶ 500 My difference is ≈ 50

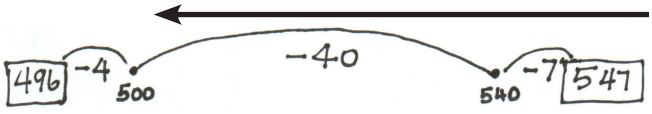
	5	4	7
−	4	9	6
		5	1

400 + 40 + 7
− 400 + 90 + 6
= 50 + 1
= 51

3. Have students show their subtraction using a number line for their three differences.



OR



My difference = 51

My difference = 51

WHAT'S THE DIFFERENCE RECORDING SHEET

PLAYER ONE

–

= ______________

PLAYER TWO

–

= ______________

PLAYER THREE

–

= ______________

PLAYER ONE

–

= ______________

PLAYER TWO

–

= ______________

PLAYER THREE

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= ______________

PLAYER ONE

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= ______________

PLAYER TWO

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PLAYER THREE

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PLAYER ONE

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PLAYER TWO

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PLAYER THREE

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= ______________

PLAYER ONE

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= ______________

PLAYER TWO

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= ______________

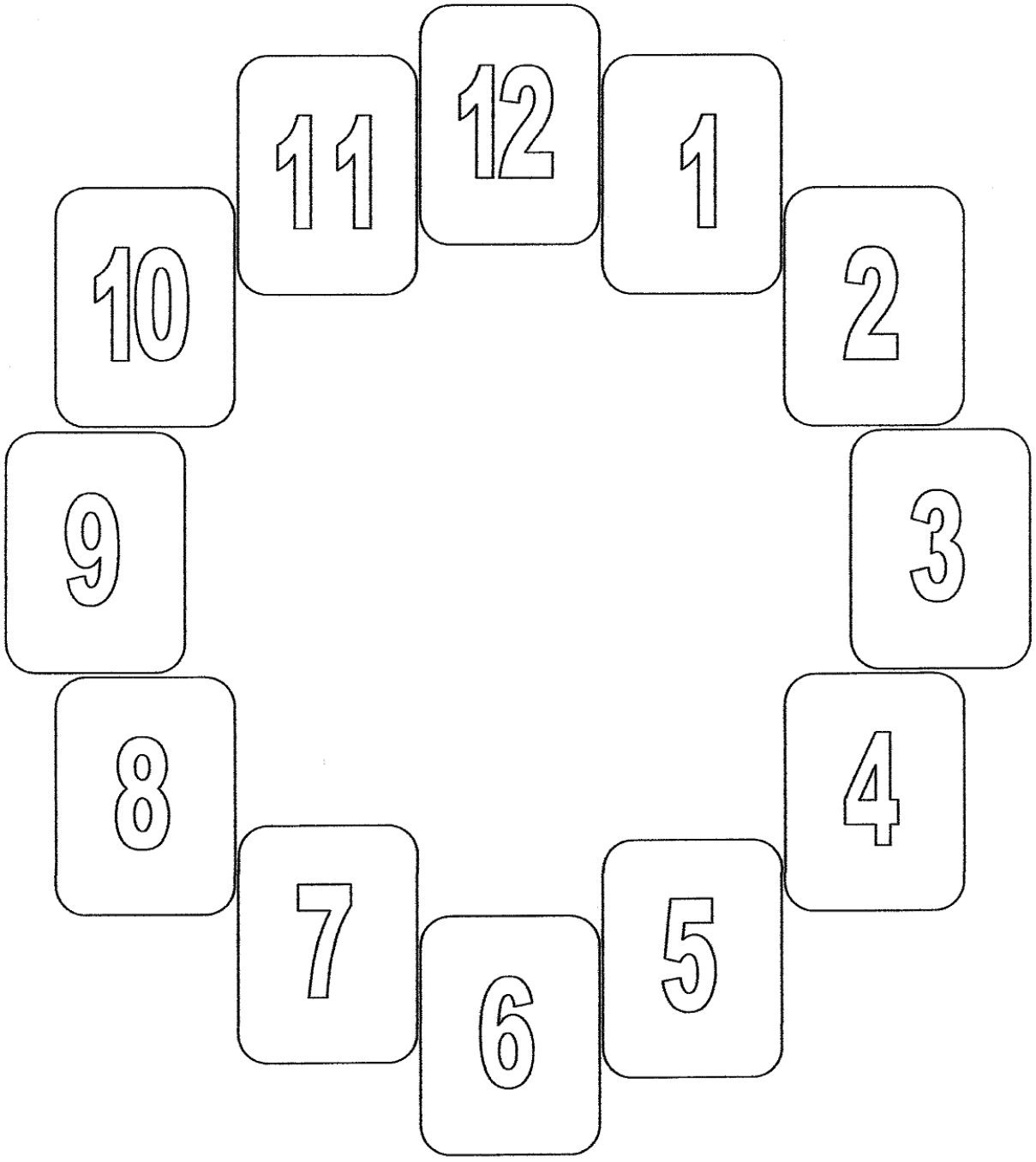
PLAYER THREE

–

= ______________

DICE TRAYS

WHAT TIME IS IT MR WOLF?

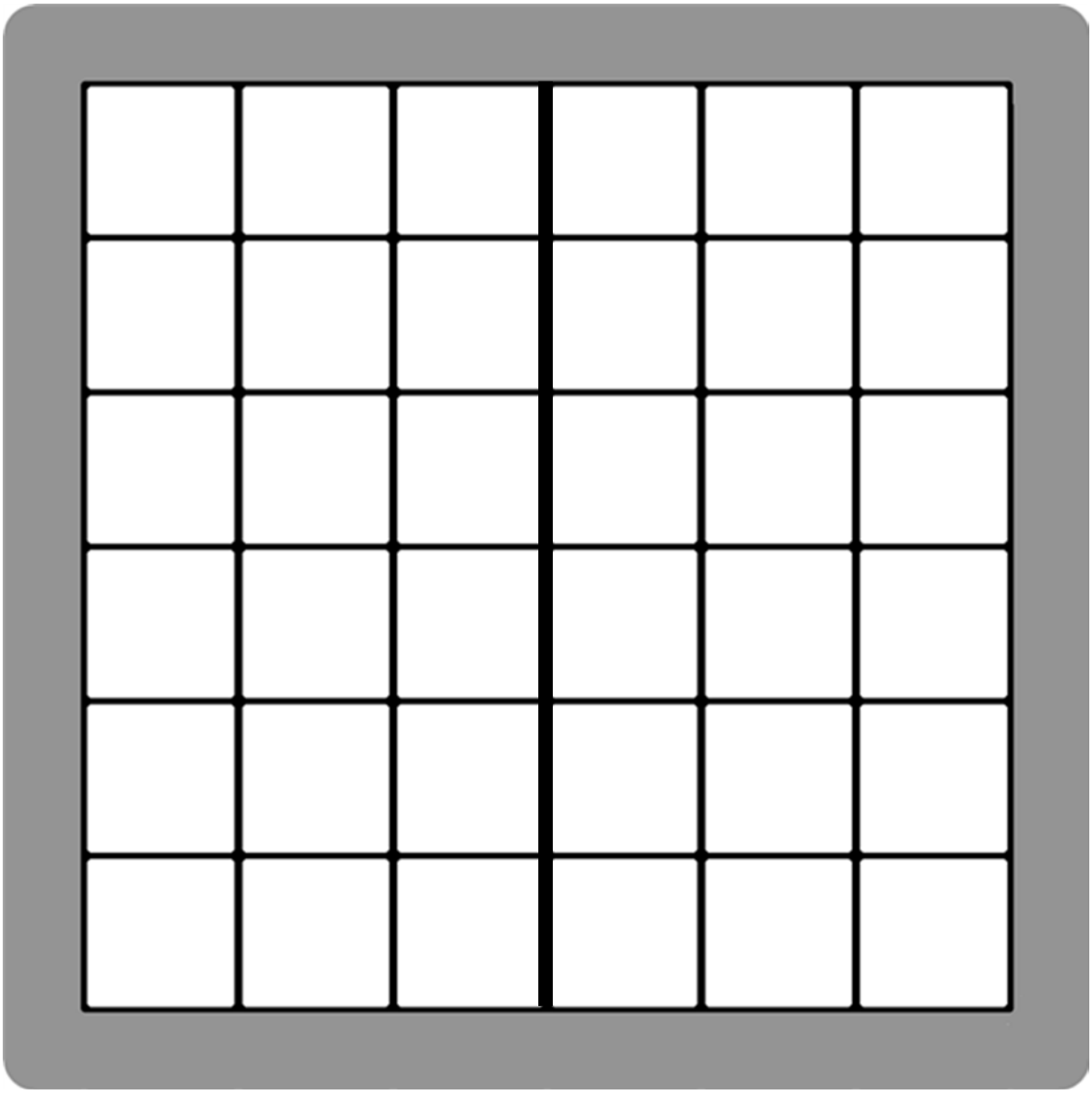


- Roll 2 regular dice and add them together.
- Use the result to fill in a time on their clock by crossing off the number on the clock, or, if playing with cards, turn over the card with the corresponding number.
- Players alternate turns until only 1 o'clock remains.

HORSE RACE

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.

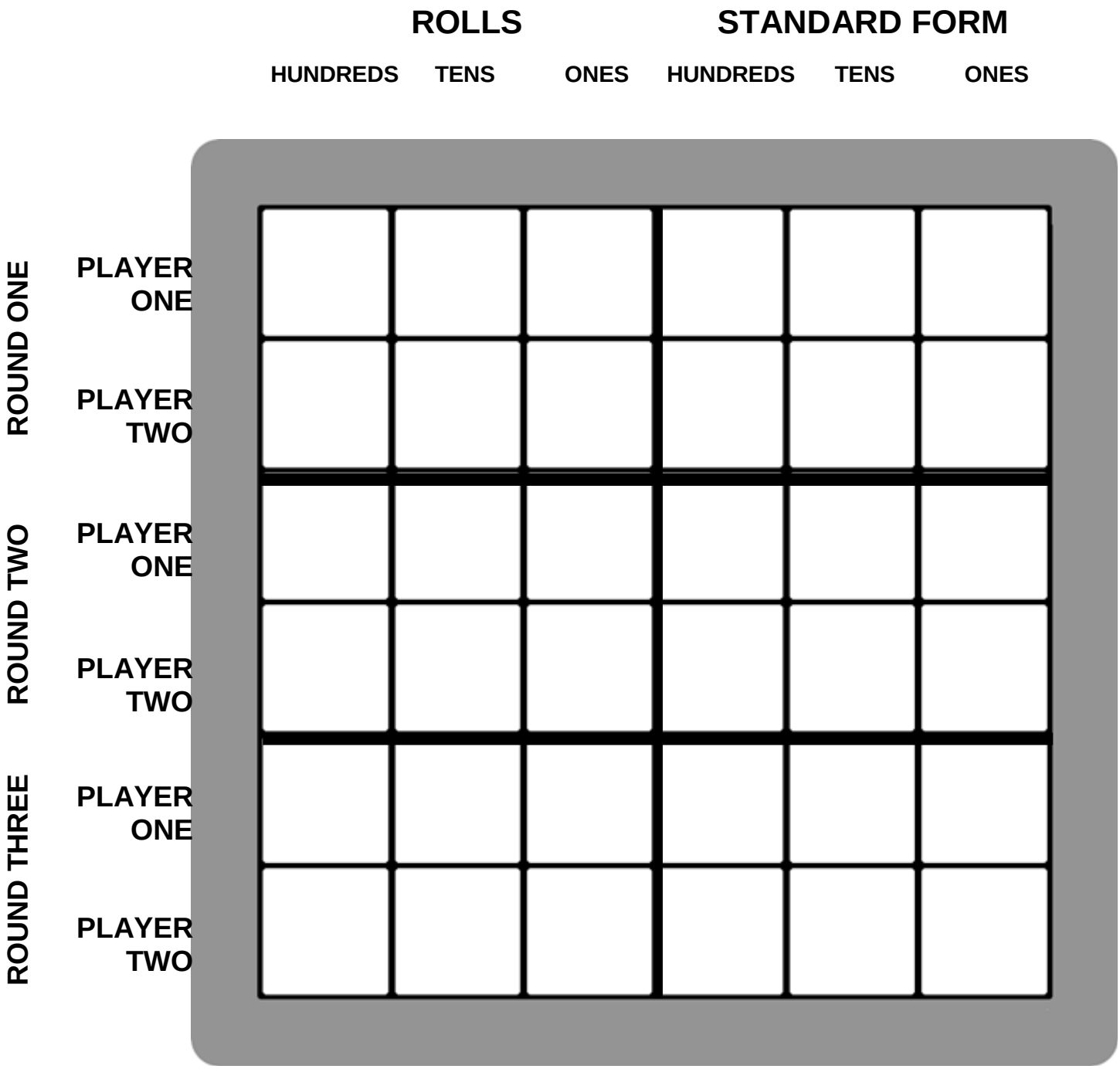
PLAYER ONE **PLAYER TWO**



WARP 18

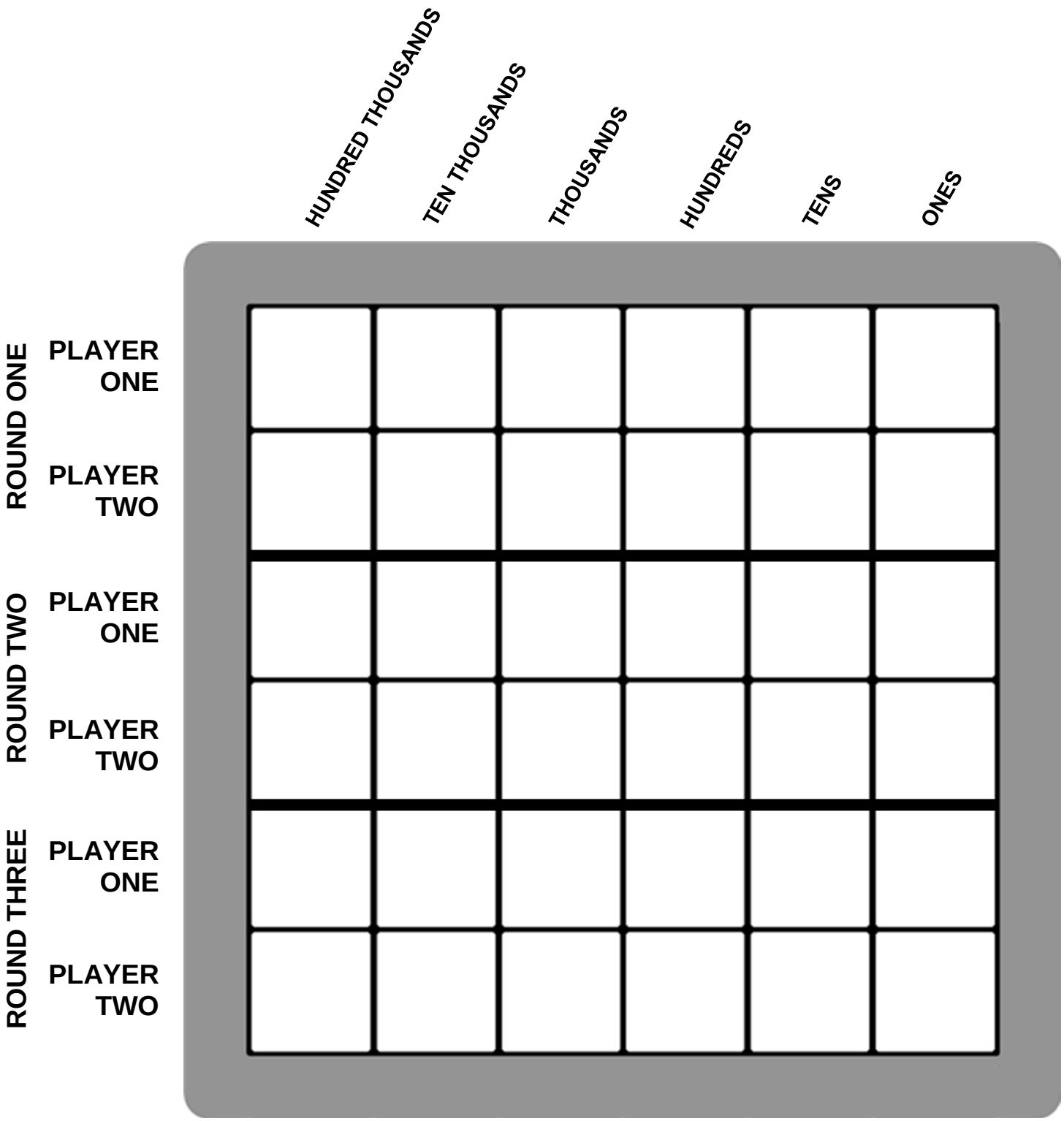
- Explore Associative Property of Addition.
- Each player takes 18 dice of their own color.
- Each player rolls 3 dice and adds.
- Player with the greatest sum places them into their side of the tray, least sum places in lid.
- Players need to verbalize how they calculated sums.
- Player with the most dice in their side of the tray at the end of the game wins.

ROLL ON PLACE VALUE



- The goal of the game is to create the greatest number.
- Players take 3 dice for the round.
- Players take turns rolling a die, placing it into either Hundreds, Tens or Ones and says place value out loud ie. 6 Hundreds = Six Hundred or 6 Tens = Sixty.
- After 3 rolls, players compare their numbers. The player with the greatest number scores 1 point.

ROLL ON PLACE VALUE



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.

MULTISIDED DICE

ROLL TO 100

LEVEL: Grade 3 and up

SKILLS: probability, adding 2-digit numbers with regrouping, sums to 100, mental estimation

PLAYERS: small groups or whole class, one roller

EQUIPMENT: 1 thirty-sided die, 1 gameboard for each player (see reproducibles), pencil

GETTING STARTED: The goal of the game is to add five numbers to get as close to the sum of 100 without going over. A roller is selected for the group. They will roll ten times for the round. Play begins with the first roll. All players must decide if they wish to select or reject this number for their gameboard. Players must make this decision at the time of the roll. Once players decide what to do with the roll (ie. use or not use the number), they fill this number in the appropriate space in their gameboard.

The roller continues until all ten rolls are complete. All spaces on the gameboard must be filled in. Players add their numbers. The player with the sum closest to 100 without going over wins and is the roller for the next round.

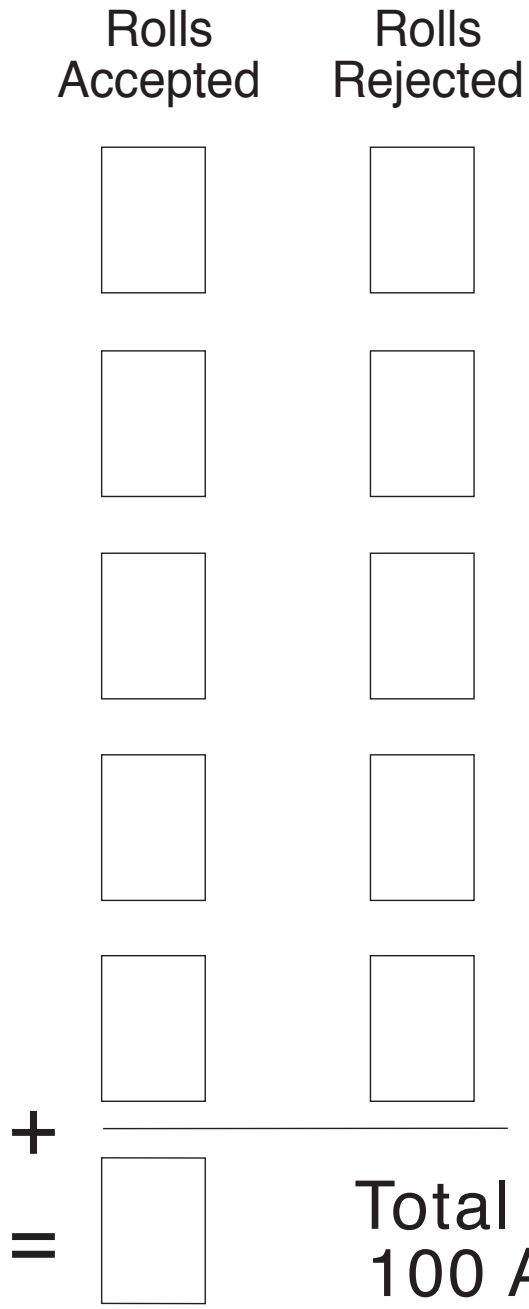
EXAMPLE: NUMBERS ROLLED IN SEQUENCE:

27, 8, 18, 26, 13, 2, 8, 19, 14, 16

Rolls Accepted	Rolls Rejected
27	8
18	13
26	2
19	8
16	14
+	
= 106	Total As Close to 100 as Possible

OVER = strike out of the round.

ROLL TO 100


Rolls Accepted
Rolls Rejected
+
=
Total as Close to 100 As Possible

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