

MILLION DOLLAR MATH
on a
DOLLAR STORE BUDGET®

Math Shakers

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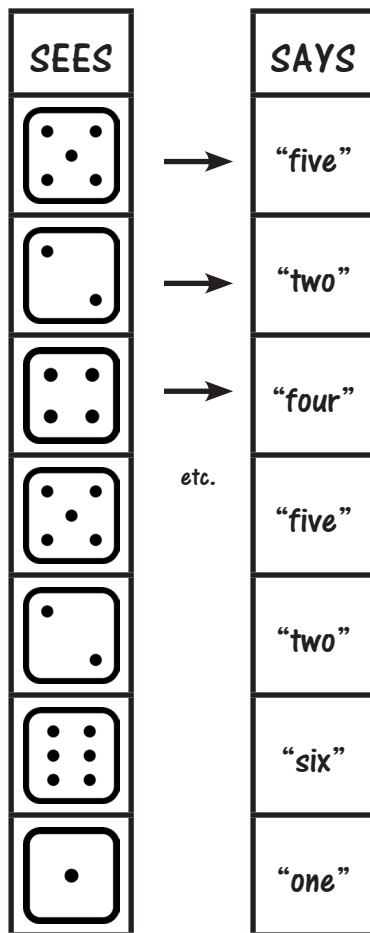
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SUBITIZING SHAKE UP

- LEVEL:** Kindergarten - Grade 1
- SKILL:** subitizing, recognition of numbers 1 - 6
- SET UP:** vertical or horizontal, 1 die in each slot, 1 shaker per student
- PLAYERS:** 2 (cooperative pair) or solitaire
- GOAL:** call out numbers with immediate recognition of dot pattern

GETTING STARTED:

FOR SOLITAIRE: Have student shake their container, hold it still, then say their numbers out loud to their partners as they work down the slots.



As students mature they could record their numbers after each shake. (see reproducibles)

EXAMPLE:

See	Say	Record
	"two"	2
	"three"	3
	"one"	1










SUBITIZING SHAKE UP

FOLLOW UP ACTIVITIES:

Play in cooperative pairs and do the following.

1. Have students print numbers and circle any matches.

SEE	NUMBER
	2
	4
	4
	1
	5
	3
	1

match

match

math talk

"I had 2 fours, 2 ones"

math thinking

"no sixes"

2. Have them compare their shaker with other students and see who had the most 1's, 2's etc.

3. Is there a number that didn't get shaken?

SUBITIZING SHAKE UP RECORDING SHEET

SEE	NUMBER

SEE	NUMBER

SEE	NUMBER

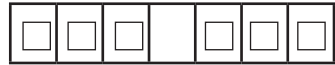
SEE	NUMBER

SEE	NUMBER

SEE	NUMBER

HUNDRED HORIZONTAL SHAKE UP

- LEVEL:** Grade 2 and up
- SKILL:** comparing 3-digit numbers $>$ $<$
- SET UP:** horizontal only, 3 dice in a row, 1 blank slot, 3 dice in a row
1 shaker per pair
- PLAYERS:** 2 (1 vs 1)
- GOAL:** to have the greatest 3-digit number



GETTING STARTED:

Have students stand or sit side-by-side. One player will be creating a HUNDREDS number on the left hand side of the container, the other a HUNDREDS number on the right hand side of the container. One player shakes until  is called. The container is placed down and the two numbers are verbalized.

			blank slot			
four	two	six		five	three	one
hundreds	tens	ones		hundreds	tens	ones
"426"				"531"		
four hundred twenty-six				five hundred thirty-one		
Player One				Player Two		



Both players say their number, then Player Two says " $531 > 426$ ". The player with the greatest number scores a point. Play continues for a set period of time. The player with the most points is the winner. In the event of a TIE (same number) both players score a point. Players shake for new combinations/hundreds numbers, and again compare their two numbers.

HUNDRED HORIZONTAL SHAKE UP

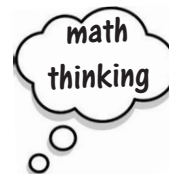
FOLLOW UP ACTIVITIES:

1. Play for the least number. Alternate one shake greatest number wins, next shake least number wins.
2. Have students record their numbers and have them use $>$ $<$ symbols to show comparison.
3. As students mature, have them verbalize and record BUMP BACK and BUMP UP numbers and patterns such as $+10$, $+100$, -10 , $+2$, etc.

EXAMPLE:

$\boxed{642} + 10$ 652, 662, 672 etc. $+ 100$ 642, 742, 842 etc.

$\boxed{642} - 10$ 632, 622, 612 etc. $- 100$ 542, 442, 342 etc.

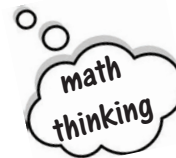


4. Have students record their verbalized patterns on the Hundred Patterns Recording Sheet on page 72.
5. Have students rewrite their shake each time to make the greatest possible number and the least possible number with the three dice rolled.

EXAMPLE:

<u>My shake</u>	<u>$>$ Possible</u>	<u>$<$ Possible</u>
$\boxed{342}$	432	234

6. Have students estimate the difference between the two numbers being compared, for example $426 \leftrightarrow 531$. The difference is about 100... 426 is almost 431, about 100 from 531.



HUNDRED HORIZONTAL SHAKE UP RECORDING SHEET

MY NUMBER				MY FRIEND'S NUMBER		
Hundreds	Tens	Ones	> = <	Hundreds	Tens	Ones
			○			
			○			
			○			
			○			
			○			
			○			
			○			
			○			
			○			
			○			
			○			

PLACE VALUE BUMP UP AND BACK SHAKERS

- LEVEL:** Grade 1 - 2
- SKILL:** naming numbers to 66, identifying number patterns, counting on and back from a given number
- SET UP:** vertical, 1 die in each slot (preferably 2 different colors of dice), 1 shaker per student, 1 number line 0-100 (optional)
- PLAYERS:** 2 (cooperative pair)
- GOAL:** name 2-digit numbers, then continue a number sequence/pattern from that number

GETTING STARTED:

For this cooperative activity have students stand or sit side-by-side. One player is designated the TENS value, the other player the ONES value. It is helpful to use two different colors of dice.

STEP ONE:


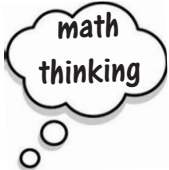

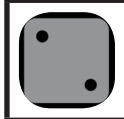
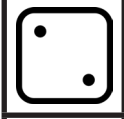
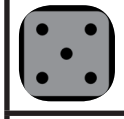
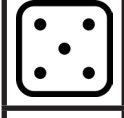
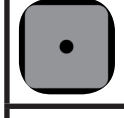
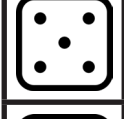
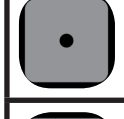
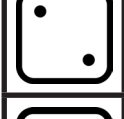
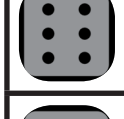
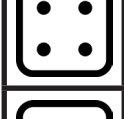
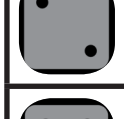
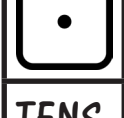
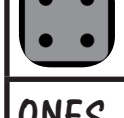
Each player shakes their container until  is called. Containers are then lined up side-by-side to build 2-digit numbers. Have students start at the top, scan down and read their numbers, verbalizing 10's and 1's.

STEP TWO:

Once the numbers have been read, players then go back to the top slot and read the "BUMP UP AND BACK NUMBERS"; the numbers before and after. (see example on next page)

PLACE VALUE BUMP UP AND BACK SHAKERS

EXAMPLE:

SEE		SAY 	BUMP BACK	BUMP UP 
		"3 tens 2 ones" "thirty-two"	31	33
		"2 tens 5 ones" "twenty-five"	24	26
		"5 tens 1 one" "fifty-one"	50	52
		"5 tens 1 one" "fifty-one"	50	52
		"2 tens 6 ones" "twenty-six"	25	27
		"4 tens 2 ones" "forty-two"	41	43
		"1 ten 4 ones" "fourteen"	13	15
TENS	ONES	STEP ONE	STEP TWO	

Player One Player Two

FOLLOW UP ACTIVITIES:

- As players progress they can record their numbers after each shake.
- PATTERN SHAKERS** - Players can progress to more complex "BUMP UP BUMP BACK" patterns such as +2, +10 etc. Allow students to use 0-100 number line.

BUMP BACK	I SAW	BUMP UP
12 22	(32)	42 52
5 15	(25)	35 45
31 41	(51)	61 71

BUMP UP AND BACK RECORDING SHEET

Bump Back I SAW Bump Up

_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

Bump Back I SAW Bump Up

_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

Bump Back I SAW Bump Up

_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

Bump Back I SAW Bump Up

_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____