



Alberta Teacher Conventions 2026

Double Dare You!

Upper Elementary
Math Games

Presented by John Felling



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DOUBLE REGULAR DICE WARM UPS

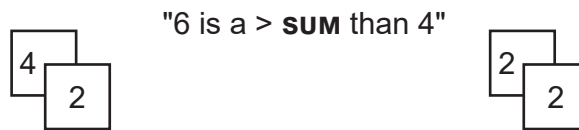
WHERE'S THE MATH IN DOUBLE REGULAR DICE?

Double regular dice provide a multitude of opportunities to explore math concepts and provide quick and engaging practice opportunities. The following activities can be played cooperatively with students working together generating answers, talking the math, and sharing ways of coming to solutions OR they can play competitively using a traditional "face off" method of playing. Either way, double dice are students' favorites for quick practice.



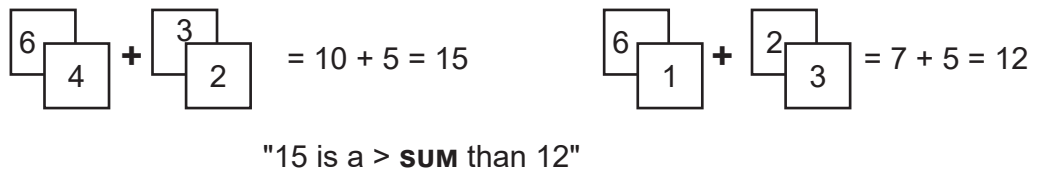
Two Player Competitive Play - in the event of a tie, both players score a point!

1. ADDITION: SUMS to 12 - each player rolls a double regular die and adds their **SUM**. Both players verbalize their sum. The player with the greatest sum scores a point.



Students can explore the commutative property of addition during this activity $4 + 2 = 6$; $2 + 4 = 6$

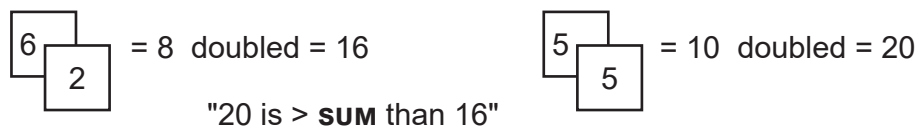
2. ADDITION: SUMS TO 24 - each player rolls 2 double dice, adds all 4 addends and compares for the greatest **SUM**.



Students can also explore the commutative property of addition while playing by adding the outside numbers and inside numbers. Using the above roll:



3. ADDITION: PRACTICING DOUBLES - this a two-step mental math activity. Each player rolls a double die, adds their sum, then doubles it. The greatest doubled sum scores a point.



4. SUBTRACTION: FROM 6 - Each player rolls a double die and subtracts the numbers for the least **DIFFERENCE**. The player with the least difference scores a point.

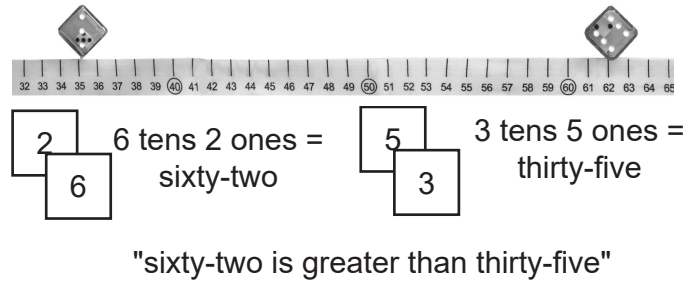


TIE - both players score a point.

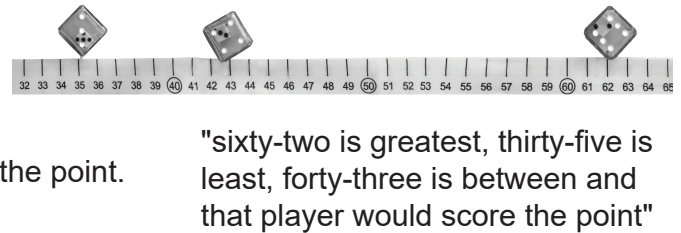
DOUBLE REGULAR DICE WARM UPS

5. PLACE VALUE TO 66 - Outside number is 10's value, inside value is the units. Students should play on a number line and place their die right down onto it to compare numbers.

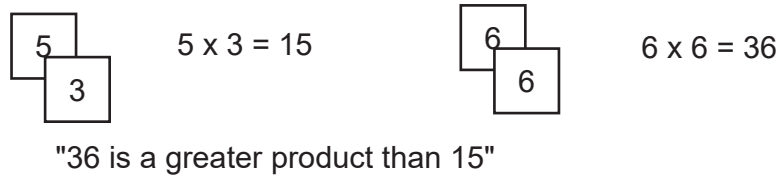
Play for greatest number.
In later play periods work on least.



As students gain a deepening understanding of place value, let them choose which number will represent 10's and 1's. Observe their thinking as they manipulate numbers when they switch from comparing for greatest or least value. You can also add a third player and the **BETWEEN** number scores the point.

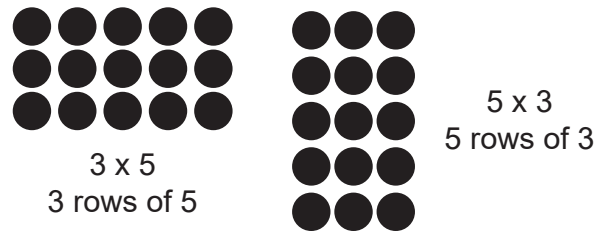


6. MULTIPLICATION: PRODUCTS TO 36 - Each player rolls a double die and multiplies the two factors. The player with the greatest **PRODUCT** scores a point.



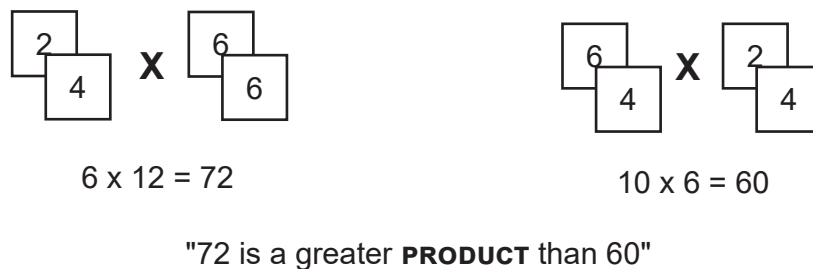
Students can explore the commutative property of multiplication in this activity.
"3 x 5 = 15 ; 5 x 3 = 15"

Have students draw arrays to show multiplication and commutative property:



This is a great two-step mental math practice activity; add, then multiply.

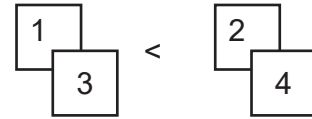
7. MULTIPLICATION: PRODUCTS TO 144 - Each player rolls two double dice and adds the sum of each die, then multiplies. The player with the greatest **PRODUCT** scores a point.



This is a great two-step mental math practice activity; add, then multiply.

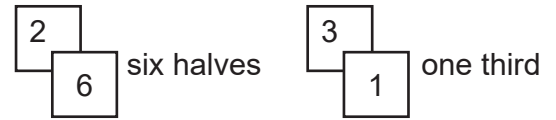
DOUBLE REGULAR DICE WARM UPS

8. FRACTIONS: to sixths - Each player rolls a double regular die and must name a proper fraction. Least proper fraction scores a point.



one-third is less than two-fourths

9. FRACTIONS: from sixths to fractions greater than one - Each player rolls a double regular die and names the fraction as follows: outside number is a numerator, inside number is a denominator. Least proper fraction scores a point.



$$\frac{6}{2} > \frac{1}{3}$$

10. FRACTIONS: ordering from least to greatest - Players can work cooperatively rolling three regular double dice. Players must name proper fractions. Use the fraction chart below to line them up from least to greatest.

1					
$\frac{1}{2}$			$\frac{1}{2}$		
$\frac{1}{3}$		$\frac{1}{3}$		$\frac{1}{3}$	
$\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{4}$	
$\frac{1}{5}$	$\frac{1}{5}$	$\frac{1}{5}$	$\frac{1}{5}$	$\frac{1}{5}$	$\frac{1}{5}$
$\frac{1}{6}$	$\frac{1}{6}$	$\frac{1}{6}$	$\frac{1}{6}$	$\frac{1}{6}$	$\frac{1}{6}$

11. Have students repeat activity 10 but now the range of possible fractions is $\frac{1}{6} \longrightarrow \frac{6}{1}$ with outside number being numerator, inside die being denominator.



$$2 \frac{1}{3}$$

Have students record their rolls on open number lines.

THREE-IN-A-CUBE DICE WARM UPS



Two Player Competitive Play - in the event of a tie, both players score a point!

1. ADDITION: SUMS to 18, associative property of addition - each player rolls a 3-in-a-cube die and adds all three addends. The player with the greatest sum scores a point.

$$\boxed{6} \boxed{3} \boxed{2} = 11 \quad \boxed{4} \boxed{6} \boxed{6} = 16$$

"16 is a greater **SUM** than 11"

Have students verbalize how they came to their answer, eg doubles, doubles + 1, making a ten etc. Associative property states: "*The order or grouping of the addends does not change the **SUM***"

2. ADDITION/SUBTRACTION: 2 step problem solving - each player rolls a 3-in-a-cube die and may add any two numbers; they then subtract the third. Players are trying to create the least **DIFFERENCE** possible. Players will have to analyze the various combinations to find the least difference for their final answer. Each number may only be used once.

EXAMPLE:

3	3	1	$3 + 1 = 4$	$4 - 3 = 1$
			Step 1	Step 2

3. PLACE VALUE: Hundreds/Tens/Ones - each player roles a 3-in-a-cube die and builds the greatest possible hundreds number. The player with the greatest number scores a point.

EXAMPLE:

4	5	1	541	Five hundred forty-one
---	---	---	-----	------------------------



- ▲ Assign Red, White, Blue as Hundreds, Tens, Ones - no choice in number formation.
- ▼ Play for least as winner eg. 145 One hundred forty-five.

THREE-IN-A-CUBE DICE WARM UPS



Each player rolls two 3-in-a-cube dice and forms a Hundred Thousand number. Use Red, White and Blue as:

Hundred Thousands	Ten Thousands	Thousands	Hundreds	Tens	Ones
THOUSANDS			HUNDREDS		

EXAMPLE:

1	6	2
---	---	---

3	4	4
---	---	---

= "One hundred sixty-two thousand three hundred forty-four"

Players can build the smallest decimal number. The player with the least number scores a point.

EXAMPLE:

6	1	1	=	"one hundred sixteen thousandths"
---	---	---	---	-----------------------------------

Have students use a bingo chip as a decimal.

Check out Cubic Mystery on page 65 for more in-depth games.

4. MULTIPLICATION/ADDITION - each player rolls a 3-in-a-cube dice and may add any two numbers; then multiply by the remaining third number. The player with the greatest product scores one point. Players will need to analyze the various combinations to find the greatest **PRODUCT**.


EXAMPLE:

6	2	3	=	①	$6 + 2 = 8$	OR	$3 + 2 = 5$	OR	$6 + 3 = 9$	
				②	$8 \times 3 = 24$		③	$5 \times 6 = 30$	④	$9 \times 2 = 18$

Player selects the second combination to compare to their partner's roll.

10 SIDED DOUBLE DICE WARM UPS

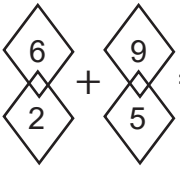
1. ADDITION: SUMS TO 18 - each player rolls a 10-sided double dice and adds their **SUM**. Both players verbalize their sum. The player with the greatest sum scores a point.

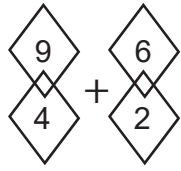


$$\begin{array}{c} \diamond \\ 6 \\ \diamond \\ 9 \\ \diamond \end{array} = 15 \quad \begin{array}{c} \diamond \\ 8 \\ \diamond \\ 3 \\ \diamond \end{array} = 11 \quad \text{"15 is a greater **SUM** than 11"}$$

Students can explore the commutative property of addition: $6 + 9 = 15$ or $9 + 6 = 15$

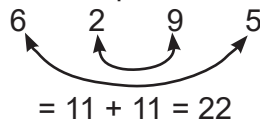
2. ADDITION: SUMS TO 36 WITH REGROUPING - each player rolls two 10-sided double dice and adds all four addends for the greatest sum. The player with the greatest sum scores a point.

Player One:  $= 8 + 14 = 22$

Player Two:  $= 13 + 8 = 21$

"22 is a greater **SUM** than 21"

This is a great activity for students to explore the associative property of addition. Addends from Player One above:



$$= 11 + 11 = 22$$

3. ADDITION: DOUBLES TO 36 - this is a two step mental math activity. Each player rolls a 10-sided double die, adds their sum, and then doubles it. The player with the greatest doubled sum scores a point.


Player One:  $= 6 + 4$
 $10 \times 2 = \boxed{20}$

Player Two:  $= 9 + 5$
 $14 \times 2 = \boxed{28}$

"28 is a greater **SUM** than 20"

4. SUBTRACTION: FROM 9 - each player rolls a 10-sided double die, and subtracts the numbers for the least **DIFFERENCE**. The player with the least difference scores a point.

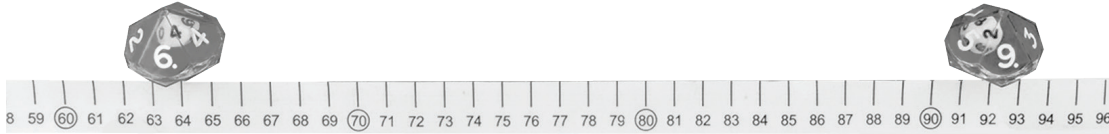
Player One:  $= 9 - 8 = 1$

Player Two:  $= 6 - 2 = 4$


"1 is a smaller **DIFFERENCE** than 4"


10 SIDED DOUBLE DICE WARM UPS

5. PLACE VALUE TO 99 - Outside number is 10's value, inside number is the unit or "one's". Students should play on a number line and place their die right down onto it to compare numbers.



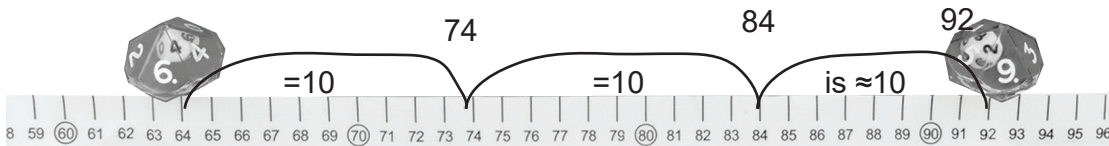
Play for greatest number, in later practice sessions work on least.

Player One:  "9 tens 2 ones = ninety-two"
92


Player Two:  "6 tens 4 ones = sixty-four"
64


"92 is greater than 64"


As students mature, they can estimate and verbalize the difference between the two numbers:
"92 is about 30 more than 64"



Add a third player and the **BETWEEN** value scores a point.

Player One:  81

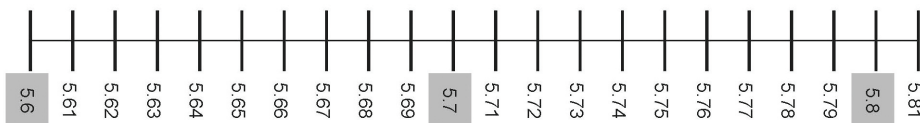
Player Two:  11

Player Three:  63




"63 is between 11 and 81, Player Three scores a point"

6. DECIMAL PLACE VALUE




10 SIDED DOUBLE DICE WARM UPS

7. MULTIPLICATION: PRODUCTS TO 81 including practice with 0 - each player rolls a 10-sided double die and multiplies the two factors. The player with the greatest **PRODUCT** scores a point.




$$6 \times 9 = 54$$




$$2 \times 0 = 0$$

Students can explore the commutative property of multiplication in this activity: "6 x 9 = 54 ; 9 x 6 = 54"

8. EQUIVALENT FRACTIONS - players roll one 10-sided double die between them and write down the fraction less than one that can be made. If 0 is rolled, it is used as "tenths" $\frac{\quad}{10}$. The players call out a simplified fraction (if possible) and one other fraction name.
Play cooperatively.



$$= \frac{3}{6} = \frac{1}{2} \text{ and } \frac{6}{12}$$



$$= \frac{10}{14}$$

See fraction activities 8 - 11 in Double Regular Dice Warm Ups on page 15 for further extensions.

See Order in the Court on page 96 for deeper level fraction activities.

12 SIDED DOUBLE DICE WARM UPS



1. ADDITION: SUMS TO 24 - each player rolls a 12-sided double die and adds their sum. Both players verbalize their sum and the player with the greatest sum scores a point.

$$12 + 10 = 22 \qquad 6 + 12 = 18$$

"22 is a greater **SUM** than 18"

Students can explore the commutative property of addition: $6 + 12 = 18$; $12 + 6 = 18$ ". They can also practice decomposing strategies: $6 + 12 = 6 + 10 + 2 = 18$. There will be many opportunities for students to work with known patterns and strategies.

2. ADDITION: SUMS TO 48 - each player rolls two 12-sided double dice and adds all four addends. The player with the greatest sum scores a point.

Player One: $6 + 8 = 8 + 17 = 25$ Player Two: $10 + 11 = 21$

"25 is a greater sum than 21"

This is a great activity to explore the associative property of addition. Addends from Player One above:

$$6 + 8 + 2 + 9 \qquad 10 + 15 = 25$$

3. ADDITION: DOUBLES TO 48 - this is a two step mental math activity. Each player rolls a 12-sided double die, adds their sum and then doubles it. The player with the greatest doubled sum scores a point.

Player One: 16×2 32 Player Two: 17×2 34

This is great practice for early multiplication strategies as well.

4. SUBTRACTION: FROM 12 - each player rolls a 12-sided double die and subtracts the numbers for the least **DIFFERENCE**. The player with the least difference scores a point.

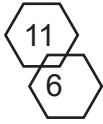
Player One: $12 - 6 = 6$ Player Two: $8 - 6 = 2$

"2 is a smaller **DIFFERENCE** than 6"

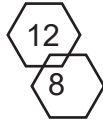
12 SIDED DOUBLE DICE WARM UPS



5. MULTIPLICATION: PRODUCTS TO 144 - each player rolls a 12-sided double die and multiplies the two factors. The player with the greatest **PRODUCT** scores a point.



$$11 \times 6 = 66$$



$$12 \times 8 = 96$$

"96 is a greater **PRODUCT** than 66"

Students can explore the commutative property of multiplication in this activity:

$$"6 \times 11 = 66 ; 11 \times 6 = 66"$$

6. FRACTIONS: TO TWELFTHS

See fraction activities 8 - 11 in Double Regular Dice Warm Ups on page 15 and activity 8 for 10 Sided Double Dice on page 20 for further extensions.

See Order in the Court on page 96 for deeper level fraction activities.

WHOLE CLASS STAND UP

Variations: Millions, Decimals, Fractions

This activity is great as a whole class warm up for working on reading numbers properly and comparing numbers. It is great to use before teaching and playing *Betweeners* on page 62 and *Cubic Mystery* on page 64.

- LEVEL:** Grade 2 - 3
- CONCEPTS:** ordering and comparing place value to 100's, 100 000's with variations
- PLAYERS:** teacher vs whole class
- EQUIPMENT:** 1 x 3-in-a-cube dice per player or per pair
- GOAL:** to stand up and "earn a point" against the teacher - comparing numbers to the goal the teacher has set for each roll

GETTING STARTED:

The 3-in-a-cube can be used to generate place value numbers.

One cube equals : hundreds/tens/ones

Two cubes equals hundred thousands/ten thousands/thousands; hundreds/tens/ones

Start with a single cube and have students **SHAKE**, **FREEZE** and **READ** to their partner the largest possible number they can make.

EXAMPLE:

2 5 1 = 521 "Five hundred twenty-one is the largest possible hundreds number"

Make sure students do not say "and" when reading their numbers; "and" denotes decimal value. Practice several times. Have students also work on making the smallest possible number within the rolls.

TO BEGIN: All students and teacher shake their die until **STOP** is called. Teacher then determines what students do with their roll:

1. Make the smallest possible number OR
2. Make the greatest possible number.


Teacher then gives their **BENCHMARK**; they look at their roll, decide and then say: "The greatest number I can make is 542. Stand up if you can make a number greater than mine, you earn a point. You score 5 points if you are equal to." Have students tally their points and sit back down.


Teacher and students roll a new number, **STOP** is called, and teacher provides the next benchmark by looking at their roll. "The least possible number I can make is 345. Stand up if you can make a number less than mine, you earn a point. You score 5 points if you are equal to." Continue through many rounds for 5-10 minutes. Have students tally their points to determine a winner.


WHOLE CLASS STAND UP

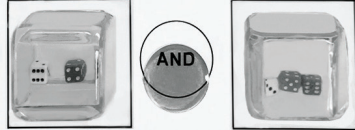
For Upper Elementary students, you may want to use the Three-in-a-Cube Roll and Chunk Sheet on page 28. Have them roll the dice and place them right down onto the sheet. The language is right above the die and guides them to read their number properly.

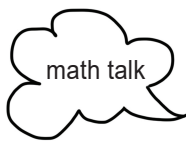
ROLL & CHUNK PLACE VALUE STRATEGY

ROLL 1 CUBE
 HUNDREDS


ROLL 2 CUBES
 THOUSANDS HUNDREDS


ROLL 3 CUBES
 MILLIONS THOUSANDS HUNDREDS


ROLL 2 CUBES
 HUNDREDS THOUSANDTHS




If students struggle to read large numbers correctly, this provides the language of place value for them.

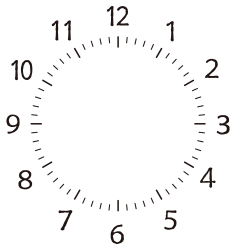
SAMPLE 2: HUNDRED THOUSANDS

	HUNDRED THOUSANDS	TEN THOUSANDS	THOUSANDS	HUNDREDS	TENS	ONES	CALL > OR <	POINTS
TEACHER ROLL	6	5	2	2	1	1	> greater	
MY ROLL	5	2	1	5	2	1		0
TEACHER ROLL	6	6	1	5	5	4	> greater	
MY ROLL	6	6	4	3	2	1		1
TEACHER ROLL	6	5	4	4	1	1	> greater	
MY ROLL	5	3	2	5	3	1		0
TEACHER ROLL	1	3	4	1	4	5	< less	
MY ROLL	1	5	5	2	3	5		0
TEACHER ROLL	6	4	2	4	2	2	> greater	
MY ROLL	6	4	2	5	2	1		1
TEACHER ROLL	1	4	4	2	4	5	< less	
MY ROLL	2	2	5	5	6	6		

← My number was greater by 2,767.

← My number was greater by 99.

TICK TOCK ROLL A CLOCK RECORDING SHEET ¹⁴



My numbers

- _____ =
- _____ =
- _____ =
- _____ =

My numbers

- _____ =
- _____ =
- _____ =
- _____ =

My numbers

- _____ =
- _____ =
- _____ =
- _____ =

Extra Rolls

My numbers

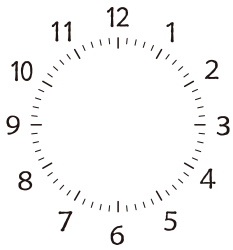
- _____ =
- _____ =
- _____ =
- _____ =

My numbers

- _____ =
- _____ =
- _____ =
- _____ =

My numbers

- _____ =
- _____ =
- _____ =
- _____ =



Extra Rolls

My numbers

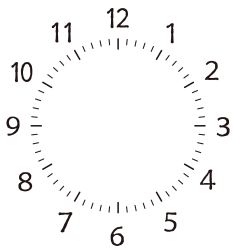
- _____ =
- _____ =
- _____ =
- _____ =

My numbers

- _____ =
- _____ =
- _____ =
- _____ =

My numbers

- _____ =
- _____ =
- _____ =
- _____ =



Extra Rolls

My numbers

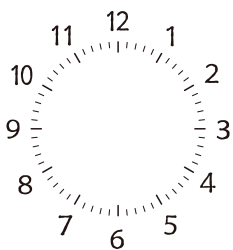
- _____ =
- _____ =
- _____ =
- _____ =

My numbers

- _____ =
- _____ =
- _____ =
- _____ =

My numbers

- _____ =
- _____ =
- _____ =
- _____ =



Extra Rolls

ORDER UP EQUATIONS RECORDING SHEET

SCORE

ACCUMULATED
TOTAL

ROLL 1 $(\square + \square) \times (\square - \square) = \square$
_____ \times _____

ROLL 2 $(\square + \square) \times (\square - \square) = \square$
_____ \times _____

ROLL 3 $(\square + \square) \times (\square - \square) = \square$
_____ \times _____

ROLL 4 $(\square + \square) \times (\square - \square) = \square$
_____ \times _____

ROLL 5 $(\square + \square) \times (\square - \square) = \square$
_____ \times _____

ROLL 6 $(\square + \square) \times (\square - \square) = \square$
_____ \times _____

ROLL 7 $(\square + \square) \times (\square - \square) = \square$
_____ \times _____

ROLL 8 $(\square + \square) \times (\square - \square) = \square$
_____ \times _____

ROLL 9 $(\square + \square) \times (\square - \square) = \square$
_____ \times _____

BETWEENERS & CUBIC MYSTERY RECORDING SHEET

PLAYER	ROLL	NUMBER
		○
		○
		○
		○

PLAYER	ROLL	NUMBER
		○
		○
		○
		○

PLAYER	ROLL	NUMBER
		○
		○
		○
		○

PLAYER	ROLL	NUMBER
		○
		○
		○
		○

PLAYER	ROLL	NUMBER
		○
		○
		○
		○

PLAYER	ROLL	NUMBER
		○
		○
		○
		○

PLAYER	ROLL	NUMBER
		○
		○
		○
		○

PLAYER	ROLL	NUMBER
Jaxon	6, 4, 3	346 between wins
Tenshima	2, 3, 3	332 lowest no win
Raymond	4, 6, 3	436 highest no win

Follow Up Activity: Have students space their answers proportionally on an "open" number line and justify their placement to the other players.

ORDER IN THE COURT

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 (Variation: Add the fractions in each round)

- ▶ Roll one die at a time. (Variation: Top Die is Numerator, Bottom Die is Denominator)
- ▶ 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.

OPEN NUMBER LINES

OPEN NUMBER LINES



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

Box Cars & One-Eyed Jacks inc

Multiplication Tic Tac Toe

- ▶ Player one rolls 2 x 0-9 or 2 x 1-12 dice and finds the product (eg $4 \times 6 = 24$; $6 \times 4 = 24$)
- ▶ 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



Visit our website at www.boxcarsandoneeyedjacks.com and Enter Coupon Code

KEEPITROLLING26

To Receive 10% Off Your Next Order!

- *May not be combined with any other offers.
- *Does not apply to sale items, the Deluxe Primary/Upper Elementary Kits or Downloads.
- *Discount is applied before shipping and handling. Valid until March 31st, 2026

Box Cars and One-Eyed Jacks Order Form

#101, 17920 - 105 Avenue, Edmonton, AB Canada T5S 2H5
 TEL: 1-866-342-3386 / 780-440-6284 FAX: 780-440-1619

Date/Convention: _____

Bill To: Company Name: _____ Contact Name: _____

P.O.# _____ FEI#: (For USA orders over \$500.00) _____

Address: _____ City: _____ St/Pv: _____

Zip/Postal: _____ Email: (PRINT CLEARLY) _____

Phone: _____ Fax: _____

Ship To: () SAME AS ABOVE Contact Name: _____

Address: _____ City: _____ St/Pv: _____

Zip/Postal: _____ Email: (PRINT CLEARLY) _____

Phone: _____ Fax: _____

Item Description (including code if known)	Qty	Price	Subtotal

Discount Code **KEEPITROLLING26** - 10%

Shipping/Handling Charges (allow 1-2 weeks)
 Orders \$0.00 to \$60.00 add \$14.00
 Orders \$60.01 to \$125.00 add 18% + 6.00
 Orders \$125.01 to \$300.00 add 15% + 6.00
 Orders \$300.01 to \$649.99 add 13% + 6.00
 Orders over \$650.00 add 12% + 6.00
 Questions? info@boxcarsandoneeyedjacks.com

GST# 135980407
 EIN# 98-1287684

Shipping
Sub-Total
Tax
 (If applicable)
Grand Total
 (Pay this amount)