

Yr 4-6

Card/Dice

Maths Games

<https://deck.of.cards/>

<http://random-cards.com/random-cards/>

https://www.google.com/search?q=online+dice+roller&rlz=1C1GCEA_enAU892AU892&oq=online+dice+roller&aqs=chrome..69i57j0l4j69i60l3.4055j0j7&sourceid=chrome&ie=UTF-8

WHY USE GAMES TO LEARN?

- Engaging
- Purposeful & repeated practice
- Strategic thinking
- Independent
- Choice & variety



Flipper

Pack of cards

SKILL: Addition

Aim:

To add as many cards as you can in 30 sec

How To:

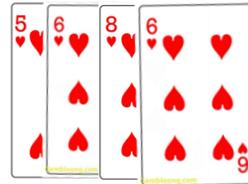
- Children have 30 sec to turn over as many cards as they can, adding them as they go.
- Encourage use of strategies, eg. add 9 is add 10 – 1
- Play again and see if they can beat their total.

Example:

A 5 card, then a 6 equals 11 (encourage $5+5+1$), then add 8 equals 19...

Children call out their totals as they go

5, 11, 19, 25...



Differentiation:

- Increase or decrease the amount of time.
- Only use cards 1 – 5 for lower primary
- Use jack, queen, king as 11,12,13 for upper primary

Dice Wars

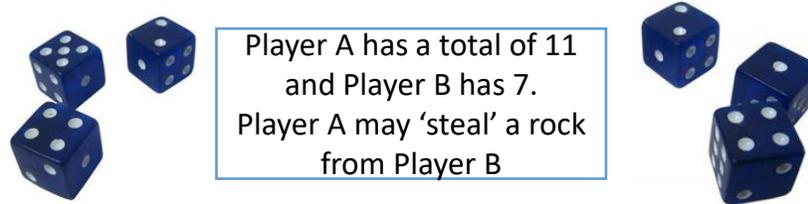
2-4 dice
10 counters

SKILL: Addition or Multiplication

How to:

- Each player starts with 2 dice and 5 counters ('rocks').
- The objective of the game is to capture all of the other player's rocks.
- On the count of three, both players roll their dice. Each player adds up the sum of his/her two dice, and whoever has a higher number gets to "steal" a rock from the other player.
- Continue playing until one player has ALL 10 rocks.

Note: Encourage using strategies to add the dice quicker, eg. doubles, near doubles, friends of 10



Differentiation:

- Rolling a double trumps any other number, and you get to steal TWO rocks from the other player
- For older kids, try using three dice!
- You could practice multiplication instead of addition skills.

Take 100

2 Dice

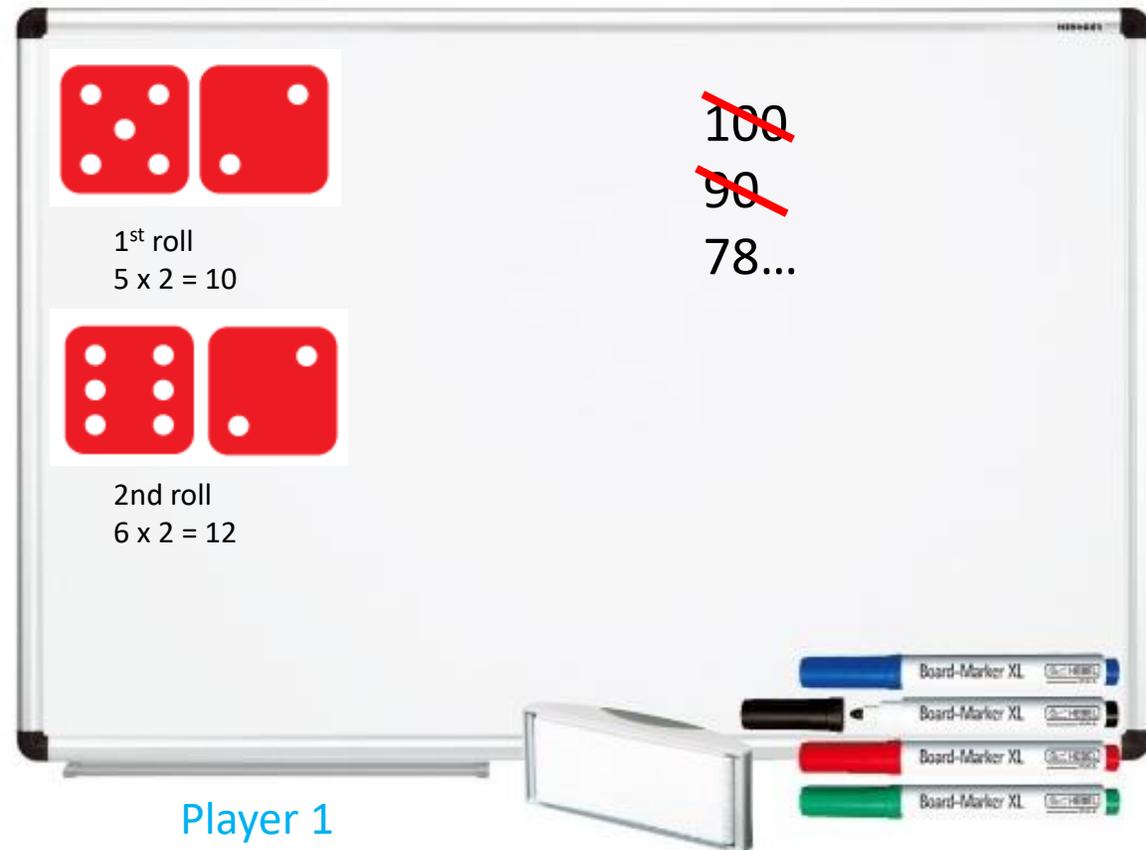
SKILL: Subtraction

Years 4-6:

Each student begins with 100 points. In turn, students roll a 2 dice and either add or multiply the numbers together before subtracting the number from their 100 points. The first player to reach zero is the winner.

Variations

- Change the number of points to begin.



Make 24

Dice

SKILL: Addition, Skip Counting, Multiples

Years 2-4:

- This game for individuals requires only 1 dice.
- The player throws the dice repeatedly, listing the numbers thrown in columns as follows.

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

- The player has to keep a running total of each column in their head and stop when one of the columns reaches exactly 24 (The fifth column will never reach 24).
- Players play the game several times and compare their findings.

Make 100

2 Dice

SKILL: Addition, Subtraction, Multiplication, Division

Years 4-8:

- The aim is to make a total of 100 or as close to 100 as possible.
- Players take turns to roll the two dice and combine the numbers with any operation to produce a score. The player who reaches 100 or is closest to 100 is the winner.
- Encourage players to record their choices and calculations.
- For example:

Dice throw	Calculation	Running total
4 and 6	$4 \times 6 = 24$	24
1 and 4	$1 + 4 = 5$	29
2 and 5	$2 \times 5 = 10$	39
6 and 6	$6 \times 6 = 36$	75
5 and 3	$5 \times 3 = 15$	90
2 and 3	$2 + 3 = 5$	95
6 and 1	$6 - 1 = 5$	100

Double, Halve or Stay

2 dice

SKILL: Double and Half

Years 4-8:

An activity for two to four players

- Choose a target number between 5 and 122.
- Players take turns to roll the dice.
- Once the dice are rolled, form a number.
- The player then makes a decision to produce a number that is as close as possible to the target number. They can choose to:
 - ✓ double their number
 - ✓ halve their number
 - ✓ keep the number as is
- The player closest to the target is the winner.

Variation: Use 2 coloured dice and decide on one coloured dice to represent the tens and the other to represent the ones

"Our target number is 70"



Player 1 roll
"My number is 62
so I'll stay"



Player 2 roll
"My number is 34
so I'll double to 68"

Player 2 is closest to 70 and wins!

Total Three

3 dice

SKILL: Addition, Subtraction, Multiplication

Years 4-8:

An activity for two players

Players take turns to roll the two dice and complete the following calculations on each roll:

- ✓ add the two numbers shown on the dice
- ✓ find the difference between the two numbers
- ✓ multiply the two numbers

Add the three numbers to produce the score for that round.

For example (player 1):

$$6 + 3 = 9$$

$$6 - 3 = 3$$

$$6 \times 3 = 18$$

$$\text{Score} = 9 + 3 + 18 = 30$$



After 10 rounds the player with the highest total is the winner.
To make the activity more challenging change the type of dice used to 8, 10, 12 or 20 sided.

Round	Player 1	Player 2
1	30	
2		
3		
4		
5		
6		
7		
8		
9		
10		

Make and Round

36 cards: 1 (Ace) to 9

SKILL: Rounding to 100/1000

How to:

- Pick 3 cards from the deck and arrange them to make a 3-digit number.
- Round the number to the nearest 100 and cover that number.
- First to cover all their numbers wins.

Extension:

4 cards and rounding to nearest 1000.

100	600
200	700
300	800
400	900
500	1000

Player 1



Or rearrange to make 855 and cross out 900



5 Cards to 100

36 cards: 1 (Ace) to 9

SKILL: Addition

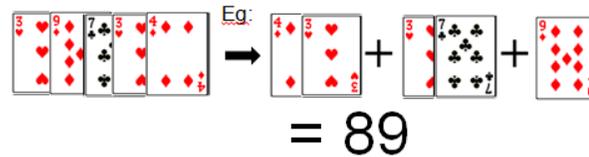
Aim:

To combine your cards so they equal 100. The winner is the person whose score is closest to 100 at the end of the game.

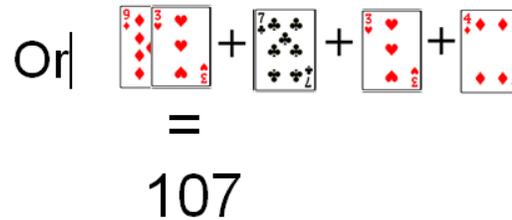
How to:

- The dealer hands out 5 cards to each player.
- Players combine the cards in their hand to try and make them equal 100, using addition only. They can combine numbers to make a two digit number, or keep them as single digit numbers.

Eg:


$$= 89$$

Or


$$= 107$$

- The player who has their answer closest to 100 wins.
- The cards are collected, shuffled and dealt again to start a new round.

Make 20

36 cards: 1 (Ace) to 9

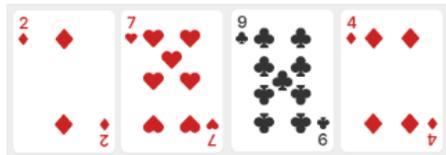
SKILL: Addition, Subtraction, Multiplication and Division

Aim:

To combine your cards so they equal 20 using a range of operations.

How to:

- Players are given 4 cards each.
- Using any of the four operations, (\div , \times , $+$, $-$) the player tries to make a total of 20.
- If the player makes exactly 20, they score 10 bonus points for making 20 plus their score of 20 (30 altogether).
- The next player has his or her turn. If they are unable to make 20, their score is the number they have made that is less than 20.
- Play continues with players trying to make 20 with another four cards. After each turn the scores are added to the player's total. The first player to reach 200 is the winner.



Player 1: "I can't make 20 so my score lower than 20 will be $9 + 7 + 4 - 2 = 18$ "



Player 2:
 $2 \times 8 - 5 + 9 = 20$
"10 Bonus points!"

Player 1	Player 2
18	30

Note:

- Consider order of operations – multiplication and division occur before addition and subtraction (unless you use brackets)

Differentiation:

- Select a different number to make

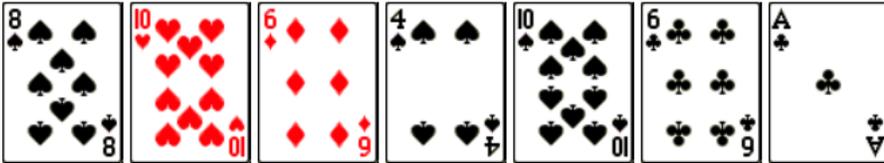
Times Table Memory

40 cards: 1 (Ace) to 10

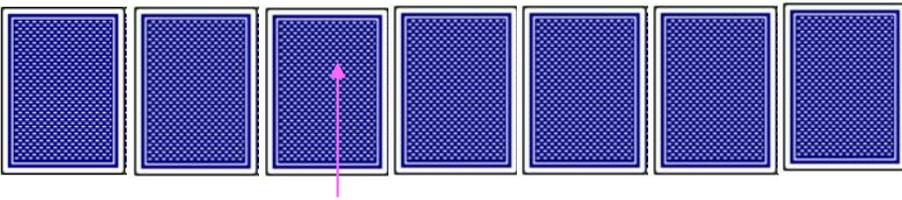
SKILL: Multiplication

How to:

- Lay out 7 cards in a row, face up.



- The 2 players need to memorise what the cards are and in what position, then turn them face down.
- Determine what times table you are learning, eg. the 3 times table and take turns to choose a card and say what the answer would be.
- Keep memorising cards and saying the times table until all are removed. Player with the most cards wins that round.

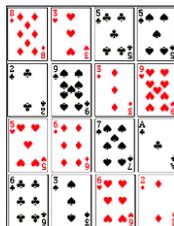


Player 1: "I think this card was a 6 so $6 \times 3 = 18$ "

Check the answer and if the card was wrong, it gets returned face down.

Differentiation:

- Use the jacks, queens, kings as 11, 12, 13.
- Make the amount of cards into a larger array



Greedy Pig

1 dice

Skill: Addition, Probability

Aim:

Roll a die to accumulate points.

Don't loose all your points by being a Greedy Pig.

How To:

- Whole class game
- A game consists of 10 rounds by default.
- All players are standing as each round begins.
- Teacher rolls the die and calls the number
- If a two, three, four, five, or six is rolled, all standing players add that number of points to their scores for the current round.
- A player can 'sit down' at any time.
- When a player sits, he or she safeguards all the points he or she has earned in the round, but is not able to earn more points until the next round.
- When a one is rolled, all standing players lose the points they have accumulated in the current round.
- The player with the most points at the end of the game wins.



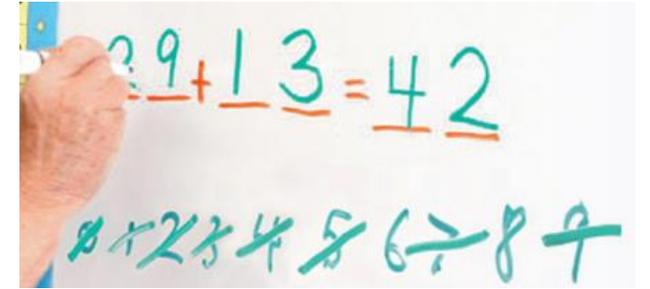
Round	My Score
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
TOTAL	

4 Strikes and You're Out!

Skill: Addition and Problem Solving

Aim:

Solve the equation before you get 4 strikes



How To:

“If you guess a number that’s in my problem, I’ll write it in all the places it belongs. If you guess a number that’s not in the problem, you get a strike. To win, you have to figure out all of the numbers before you get four strikes.”

“First you just have to guess.”

“But after I write some numbers, you’ll have some clues.”

$$\underline{\quad} \underline{\quad} + \underline{\quad} \underline{\quad} = \underline{\quad} \underline{\quad}$$

0 1 2 3 4 5 6 7 8 9

Oh No! 99!

Skill: Addition and Subtraction

Card Values and Operations:

- Aces: add 1
- Jacks: subtract 10
- Queens: wild cards that can represent adding any number 1-10
- Kings: add zero
- All others (2–10): add their face value

How To:

1. One player shuffles the cards and deals four cards to each player. The undealt cards remain in a stack, face down.
2. Players take turns playing one card at a time, adding (or subtracting if you have a Jack) the value of their card to or from their jointly accumulating score.
3. Each time a player plays a card, he or she must replace it with the top card on the face-down stack.
4. Play continues until one player forces his or her partner to go over the score of 99.

Extra Support: the students use a number grid to 100 and circle numbers as they play.

Deck of cards



A Writing Assignment for Fifth Graders
When Caren taught the lesson in fifth grade, she gave the class this writing assignment:

“Imagine,” I said, “that you’re playing Oh No! 99! and the total is up to 87. Your four cards are a six, a queen, an ace, and a king. Which card would you play next?”

Heads and Tails

2 x ten sided dice
coin

Skill: Place Value, Addition, Subtraction

How To:

- All students start at 500 and the idea of the game is to be the first to 1000 or to 0.
- The students roll the 2 dice and make a number



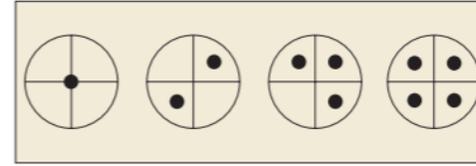
Step 1 Roll Dice
Can make 23 or 32
"I'll make 32"



Step 2 Flip A Coin
Tails
Subtract 32 from my 500

- The students then throw the coin if they get *heads they add* the number to 500, if they throw a *tail they subtract* the number
- The next person has a turn, etc. until someone reaches 0 or 1000

Lu Lu Fractions

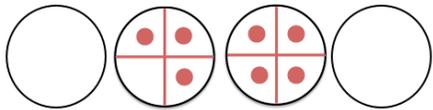


4 counters - Each counter divided into four equal sections
One side of the counter is blank.

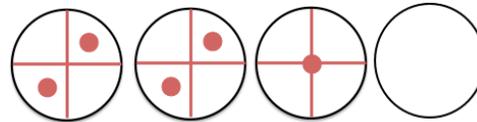
Skills: Adding Fractions

How To:

- You and a partner will take turns seeing who scores the greater number of points.
- The aim is to see the highest total after 7 'shake and drops'.
Or you could race to 20.



Player 1:
1st Shake = $1 \frac{3}{4}$



Player 1:
1st Shake = $1 \frac{1}{4}$

Shakes	Player 1	Player 2
1	$1 \frac{3}{4}$	$1 \frac{1}{4}$
2		
3		
4		
5		
6		
7		
TOTAL		

Drop Dead Dice

5 dice

Skill: Addition.

Aim:

To score as many points as possible.

At the start of the game players determine either:

- ✓ the target score; or
- ✓ how many rounds they will play.



How To:

Player one throws all five dice. If his roll contains a 5 or a 2 he scores no points, removes any dice showing a 5 or 2 and re-rolls the remaining dice. If the roll does not contain a 5 or a 2, he adds up the total, records it on the score card and rolls all five dice again. He continues in this way until all the dice are removed from play. Play continues with the next player.

Player 1:



1st roll
No score, remove
the 5 and 2.



2nd roll
Score: 8



3rd roll
No score,
removes the 2s.



4th roll
Score: 6.



5th roll
No score.

TOTAL SCORE for that round for Player 1: 14

Factors and Multiples

A 100 square grid

Skill: Factors and Multiples

How To:

The first player chooses a positive even number that is less than 50, and covers it out on the grid with a counter.

The second player chooses a number to cover. The number must be a factor or multiple of the first number.

Players continue to take it in turns to cover numbers, at each stage choosing a number that is a factor or multiple of the number just covered by the other player.

The first person who is unable to cross out a number loses.

e.g. the following game started 12, 4, 44, 11, 77...

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

Magic Number

Deck of cards – can remove face cards

Skill: Addition and Subtraction

How To:

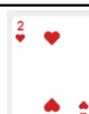
- Give students a magic number, eg. 43
- Player 1 picks 2 cards and the totals are added together.
- Player 2 picks a card and adds the number to the previous total.
- Player 1 picks a card and its added to the running total.
- Play continues until they get the magic number.
- Students will need to start subtracting as the running total exceeds.
- Game continues until they hit the magic number so they'll need to add and subtract a few times.

Extension:

Leave face cards in as Jack = 11, Queen = 12 and King = 13 and increase the magic number

Magic Number is 43

Running Total

Player 1		$7 + 4 = 11$
Player 2		14
Player 1		24
Player 2		32
Player 1		37
Player 2		45 (total is over so need to subtract next card)
Player 1		43 WINNER!

Last Number Standing

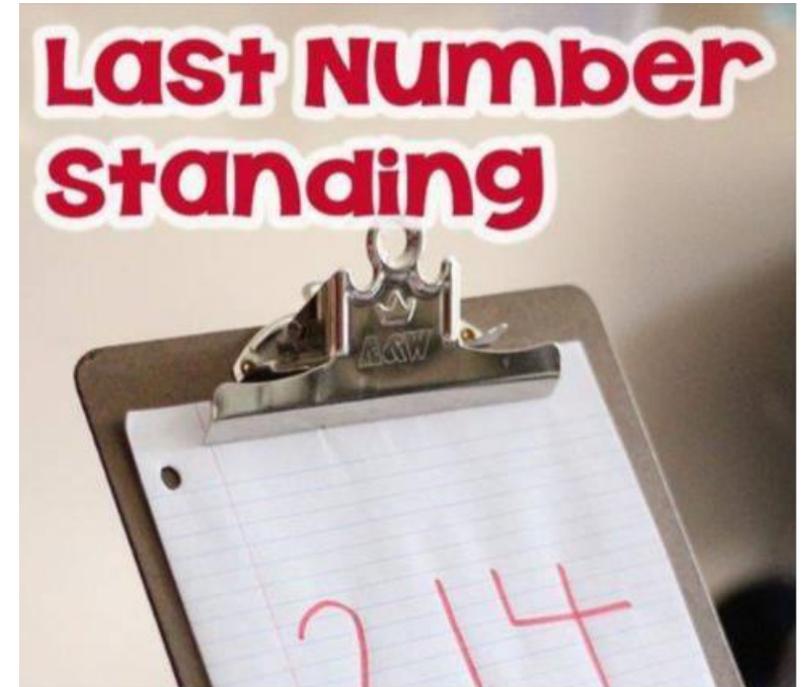
Skill: Place Value

How To:

- Students write down a 3 digit (or 4/5 digit) number on their paper
- Call out different place values, eg. Sit down if you have a 3 in the tens place
- Keep calling out different place value amounts until only one student standing
- This is The Last Number Standing

Extension:

- Instead of calling out place values, write non-standard partitions on the board and students work out if they have that place value, eg.
 - ✓ 30 tens = 300
 - ✓ 20 hundreds = 2 000
 - ✓ 50 ones = 50
 - ✓ 400 tens = 4000



101 and Out!

One dice

Skill: Place Value and Addition

How To:

- Explain the rules: A 1–6 number cube will be rolled six times.
- With each roll, students write the number that comes up on their game board.
- They write the first number on line 1 of their game board in either the 10s column or 1s column; they write the second number on line 2 in either column; and they continue to play for six rolls.
- Once students write a number, they can't change it.
- After writing six numbers, they fill in any blanks in the 1s column with zeros, and then add to find the sum.
- The winner is the player with the sum that is closest to 100 without going over.



	10s	1s
1		
2		
3		
4		
5		
6		
TOTAL		

Make 40

Skill: Addition

Aim: To add numbers until the total gets to 40.

How To:

- Deal out the cards to the players.
- The first player turns over their top card and places it in the middle.
- The next player turns over their top card and places it on the first card. This player adds the value of the two cards and tells everyone the total.
- The next player does the same, adding the value of their card to the previous total.
- Play continues until the total reaches 40 or over. The player who puts down the card that takes the total to 40 or over takes all of the cards and shuffles them in with their remaining cards.
- Play continues until set time or when one player has no cards left.
- The winner is the person with the most cards.



Differentiation – Have students add to 20 or for a harder activity you may like to get them to add till they get to 100.

Place Value War

36 cards: 1 (Ace) to 9

Skill: Place Value and Probability

How To:

- Students draw Place Value mat
- Place your cards one at a time on your mat. Once you have placed the card, you can't move it.
- What are the chances you will get a card with a larger value to put in the thousands column?
- Read your number. Who got the highest? How do you know?
- Extension – add or subtract the 2 numbers. Check the answer with your partner.



THOUSANDS	HUNDREDS	TENS	ONES

Make a Buck

Deck of cards

Skill: Adding Decimals

Object:

Be the first person to collect ten cards that exactly equal \$1.00.

How To:

- Deal ten cards to each player.
- Players then take turns drawing and discarding one card at a time until the deck of cards is depleted or a player collects exactly \$1.00.
- The first player to collect ten cards that equal \$1.00 wins that round and earns 1 point.
- If no one has \$1.00 after the deck is depleted, the person closest (without going over) earns .5 of a point.

Differentiation:

- For younger kids, you could change the cards to whole number values and play to \$100. For instance, Ace = \$1, Two = \$2 and so on.
- Or to work on integer operations, make the black cards positive values and red cards negative values and play to zero.

In this game;

Ace = \$0.01

Two = \$0.02

Three = \$0.03, ...

Tens = \$0.10

Jack = \$0.11

Queen = \$0.12

King = \$0.13

Tic-Tac-Toe

Grid paper

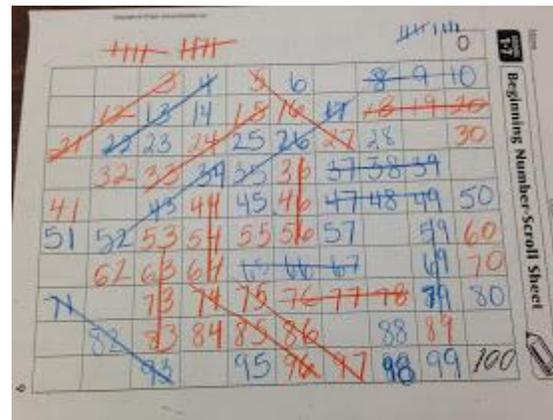
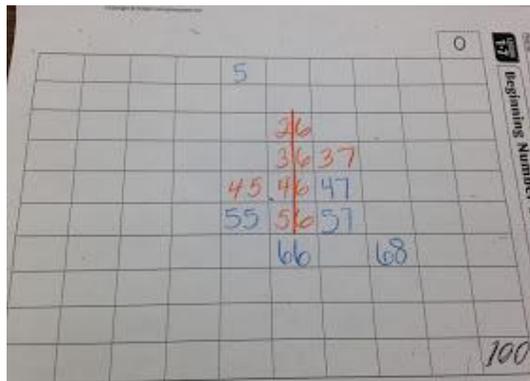
Skill: Place Value and Counting

How To:

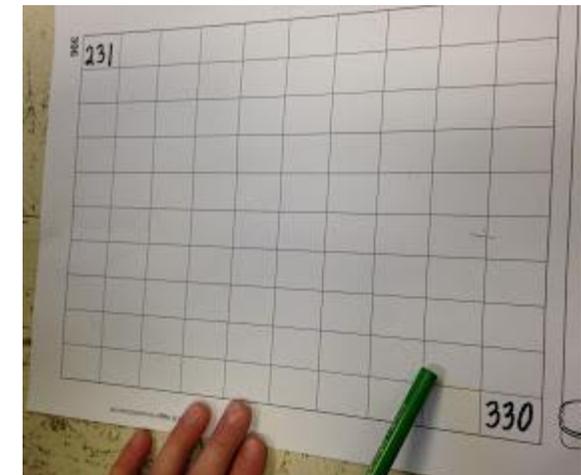
- Using different coloured pencils, players alternate capturing squares on a hundreds grid while trying to get 4 squares in a row, column, or diagonal.
- Each tic-tac-toe is worth a point, and you can keep track with tallies. Play until the board is filled up.

Differentiation:

- Start at 0.1, moved by increments of 0.1.
- Start at 27.4 and moving by 0.1 increments.



Try something harder...



Salute!

40 cards: 1 (Ace) to 10

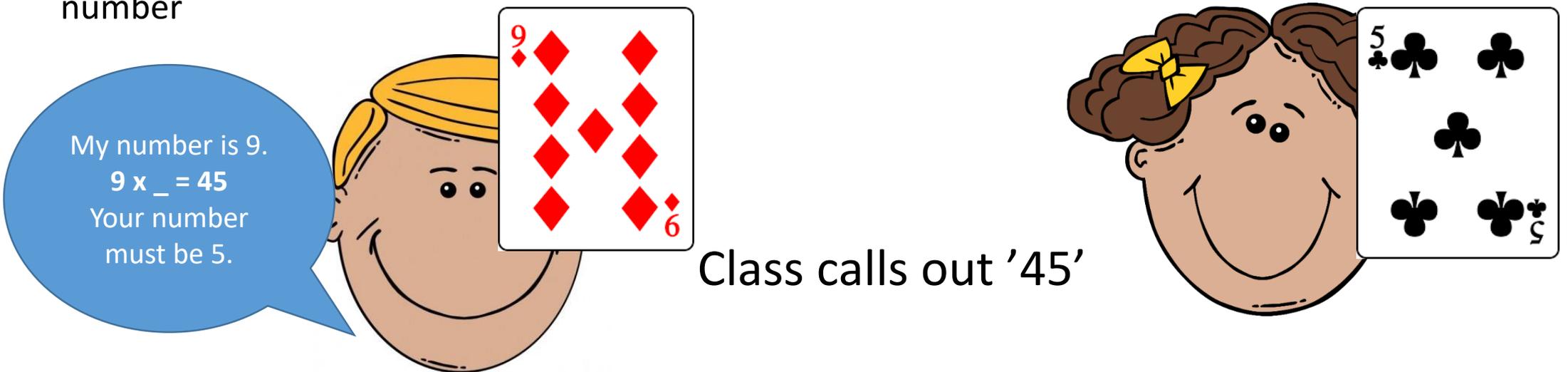
Skill: Multiplication

How To:

- 2 children sit back to back
- Each takes a number card to hold up, and the rest of the class calls out the product of the 2 numbers
- The pair have to shout out the number held by their partner
- The fastest remains in their place with a new challenger

Differentiate:

- Have 4 students with 4 numbers that class calls out sum of and students have to add to work out their number



War

40 cards: 1 (Ace) to 10

Skill: Depends on game objective

How To:

Basic War—Each player turns one card face up. The player with the greatest number wins the skirmish, placing his own and all captured cards into his prisoner pile. Whenever there is a tie for greatest card, all the players battle: each player lays three cards face down, then a new card face up. The greatest of these new cards will capture everything on the table.

Addition War—Players turn up two cards for each skirmish. The highest sum wins.

Advanced Addition War—Turn up three (or four) cards for each skirmish and add them together.

Subtraction War—Players turn up two cards and subtract the smaller number from the larger. This time, the greatest difference wins the skirmish.

Product War—Turn up two cards and multiply.

Advanced Product War—Turn up three (or four) cards and multiply.

Fraction War—Players turn up two cards and make a fraction, using the smaller card as the numerator. Greatest fraction wins the skirmish.

Integer Addition War—Black cards are positive numbers; red cards are negative. The greatest sum wins. Remember that -2 is greater than -7.

Multi-Digit War—Turn up two or three cards and create a 2-digit or 3-digit number.

Multi-Digit Subtraction War—Turn up three cards. Make two of them into a 2-digit number, then subtract the third. Example: Suppose you turn up 3,4, and 5. Should you arrange them as 54-3 or 45-3 or 35-4 or . . . ?

Multi-Digit Product War—Turn up three cards. Make two of them into a 2-digit number, then multiply by the third. Example: Suppose you turn up 3,4, and 5. Should you arrange them as 5×43 or 4×53 or 3×54 or . . . ?

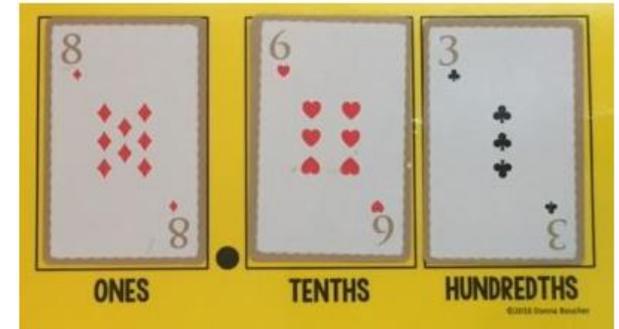
Speed Racer—For two players of evenly-matched ability. Each player turns up one card, and the first player who calls out the correct sum (or difference, or product) of those two cards wins the pair.

Winning:

When the players have fought their way through the entire deck, count the prisoners.

Triple Digit Dare: Decimals

36 cards: 1 (Ace) to 9



Skill: Decimal Place Value

How To:

- Deal each player 3 cards.
- Players use the cards to create the largest 3-digit decimal number possible.
- Players show their cards, and the player with the greatest 3-digit number takes all the cards.
- Play continues with 3 more cards for each player.
- You could easily vary this game to use 2-digit or 4-digit decimals

Extension:

Students pick one card at a time and chooses where to place it and the decision can't be changed

Tens	Ones	Tenths	Hundredths	Thousandths

Variations:

Ones	Tenths	Hundredths	Thousandths

Tens	Ones	Tenths	Hundredths

For More Fun (Stick, Swap or Steal):

Taking turns, each player has the option to...

- **Stick:** keep their 3 cards
- **Swap:** remove one card from their hand and take a new card from the pile in the middle of the table
- **Steal:** trade a card from their hand for a card from any other player's hand (without looking at what card they are picking)

Multiplication Battle

Skill: Multiplication

Aim: To multiply numbers to win as many cards as possible.

How To:

- Deal the cards evenly among the players.
- One player throws the dice.
- Each player then flips up one card from their pile of cards.
- Each player multiplies the number of their card with the number rolled on the dice, the highest total wins the cards that have been flipped over.
- The player that is left with cards wins!

Extension – Add face cards to multiply larger numbers.

40 cards: 1 (Ace) to 10
Extension: include face cards
Dice



Target Number

36 cards: 1 (Ace) to 9

Skill: Addition, Subtraction, Multiplication and Division

How To:

- Pick a random number in the thousands and write it on the board.
- You can tell students it is your TARGET NUMBER.
- Pick 5 cards from the deck
- Students use any of the five numbers with any math operation, or a combination of operations (addition, subtraction, multiplication, division) to write an equation with an answer that is as close to the target number as possible. They can combine any of the 5 cards to make 1, 2 or 3 digit numbers in their equation
- The closest student wins!



Cards drawn
Target number is 5000

Player 1: $55 \times 94 - 7 = 5163$

Player 2: $975 \times 5 + 4 = 4879$

Player 2 wins!

What's the Probability?

10 sided dice

Skill: Place Value, Probability and Addition

How To:

- Students draw grid on their white boards/paper
- Roll the 10 sided dice and all students place the number on their grid, thinking about where to place it to get the largest number, eg. Roll an 8, would you put it in ten thousand or hundred thousand or do you think you might roll a 9 and put this in the higher place value.
- Talk about chance of a number being rolled and which place value it might go in.
- Fill all the spaces
- Add them up – highest score wins!

- ✓ Add the number to your grid as it is rolled.
- ✓ It can't be changed.
- ✓ Fill the grid.

	Hundred Thousand	Ten Thousand	Thousand	Hundred	Ten	One
					4	2
				5	4	0
			7	5	4	3
		6	4	6	3	4
+	8	8	9	4	1	2
Total Score:	9	6	2	1	7	2