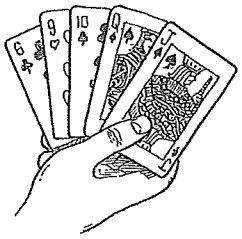
E

MC +

Odd and Even



Purpose

Children will add three numbers and determine whether the sum is odd or even.

Teacher notes

This game will help students to explore patterns such as:

- odd + odd +odd
- even + even + even
- even + odd + odd, and
- even + even + odd

Materials

A pack of playing cards. Ace = 1, J = 11, Q = 12, K = 13. The pack is split in half (26 cards). The cards may be carefully split according to suits (ie two suits), or simply 26 random cards.

Organisation

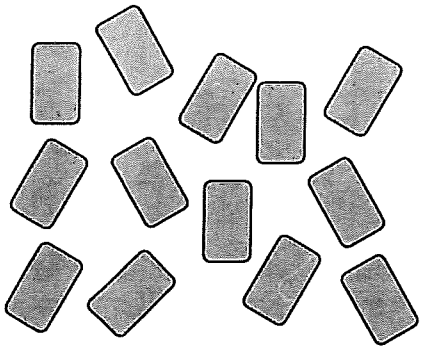
Two players or a pair of players versus another pair of players

Aim

To win the most cards

Rules

1. The cards are dealt face-down in a random pattern onto the desk.



2. One player chooses 'odd' and the other 'even'.
3. The 'even player starts by turning over three cards. The numbers shown on the cards are added. If the total is 'even', then the 'even' player wins those cards. Other players check whether the total is correct. If the total is odd the cards are turned back so they are face-down. On the next turn, the 'odd' player may turn over ***one*** of the three cards that had been turned over.
4. The 'odd' player takes a turn and flips over three cards.
5. Eventually two cards will be left face-down on the table. This signals the end of the game.
6. The winner is the player with the most cards at the end of the game.

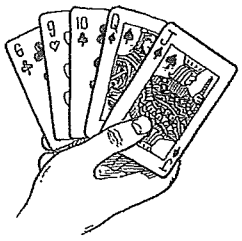
Variations

1. At the end of the game, players add the numbers shown on their cards. The player with the highest total declared the winner.

EM

MC +

13, 12, 11, ...



Purpose

Children will add two-digit numbers.

Materials

A pack of playing cards, Ace = 1, Jack = 11, Queen = 12, King = 13, remove Jokers.

Organisation

Ideally four players. but may be played with three players.

Aim

To achieve the highest score.

Rules

1. All the cards are dealt so that each of the four players receives 13 cards. (If playing with 3 players, just deal 13 cards each.)
2. Each player then adds the values on each card. The cards are passed to the player on the left so the total may be checked before each player's total is written down.
3. The player with the highest total wins that round and is allowed to chose one card from each other player's hand. Note that the other players fan their cards face down to allow the winner to choose a card. Should two players end up with the same total, they both draw cards from the other players (including the other winner).
4. The winner keeps the cards that were won in a pile face-down and does not look at them until the end of the game.
5. Other cards are returned to the deck and reshuffled.
6. In the next round 12 cards are dealt, then 11 in the next round an so on.
7. Play continues until a particular number of cards are dealt, eg 5, depending on the time available.
8. Players total their scores from each round. Then they each turn over any 'extra' cards won from each round and add the values to work out the final total and the winner.

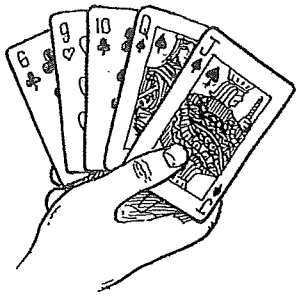
Variations

1. Remove the higher value cards and deal less cards per player for a simpler game.
2. Players score points according to the difference between their score and a set number, eg 40.
3. The winner draws three cards from each other player.
4. Start with 5 cards dealt in the first round, 6 cards in the second round, 7 cards in the third round and so on.

MU

MC – x

Take Care and Square



Purpose

Children will square numbers to 13

Materials

A pack of cards, Joker = 0, Ace = 1, Jack = 11, Queen = 12, King = 13

Organisation

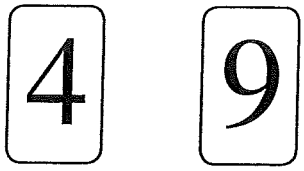
Two players.

Aim

To be the player with the most cards at the end of the game.

Rules

1. All of the cards are dealt to each player face-down.
2. Players do not look at their cards. They simply create a pack face-down in front of themselves.
3. Each player simultaneously turns a card over from the top of their pack.
4. Players mentally calculate the difference between the two cards they turned over and square it.



Player 1 Player 2

Difference of 5
Squared = 25

5. The first player to call out the correct square wins the cards and places them in a pile nearby.
6. The winner is the player with the most cards at the end of the game.

Variations

1. Each player turns over a card and squares it. The player with the highest number wins points that match the difference between the two squared numbers. The player with the most points after 10 rounds is the winner.
2. Reduce the number of cards by using only 1 – 9.

MU

MC – +

What's the Difference?

Purpose

Children will calculate the difference between two three-digit numbers.

Materials

A pack of playing cards, with all of the picture cards, tens and Jokers removed. Ace = 1. The pack is separated into 4 packets of cards 1 – 9. Alternatively blank cards with the numbers 0 – 9 may be used.

Organisation

Two to four players.

Aim

To be the player with the largest difference.

Rules

1. Each player is given a packet of cards 1 – 9.
2. Each player shuffles the cards and deals out three cards and then another three cards face-up to themselves. Thus two three-digit numbers are formed.

3. Players calculate the difference between the two three-digit numbers (eg 294).
4. The player with the largest difference is the winner for that round. Any disputes as to the correct answer may be settled with a calculator.
5. The winner for the round collects all his/her nine cards, shuffles them and fans them out face down for another player to pick from. Whatever card the other player picks becomes the winner's score for that round.
6. Play continues for 12 rounds.
7. The winner is the player with the most points.

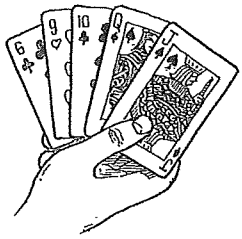
Variations

1. Use four cards to produce two, two-digit numbers, or five cards to produce a three-digit and a two-digit number.

EMU

MC + − x ÷

Race to 100



Purpose

To review basic number facts (+, −, x, ÷).

Materials

A pack of playing cards. Ace = 1, Jack =11, Queen = 12 and King = 13. A pencil and paper.

Organisation

Two - four players. May also be played as a solitaire version.

Aim

To be the first player to score exactly 100.

Rules

1. Three cards are dealt to each player and the deck is placed in the middle of the table.
2. The player to the left of the dealer selects two of the three cards in his/her hand combined with an operation to create a number. This is recorded.
3. The two cards that were used to create the number are placed face-down in a pile in front of that player.
4. The player then draws another card from the deck.
5. In a clockwise direction, one after the other, the rest of the players do likewise.
6. If a player makes 100 in the first round they win. If not, play continues for a second, third, up to a maximum of five rounds. If a player hasn't made 100 by the end of the fifth round, the player with the total closest to 100 is the winner
7. In the second round and all subsequent rounds, each player only has two cards (the one left at the end of the previous round and the one picked up from the deck).
8. The first player now uses the score from the previous round, together with one of his/her two cards (and any operation +, −, x, ÷) to try to score 100.
9. Here is a sample game for a single player. Imagine the player was dealt a 5, 6 and King.

Name:			
Turn	**Played**	**Cards**	
		Retained in hand	Drawn from deck
1	6 x 13 (King) = 78	5	4
2	78 + 4 = 82	5	2
3	82 ÷ 2 = 41	5	Ace
4	41 + 1 = 42	5	7
5	42 ÷ 7 = 6	5	3
6	6 x 5 = 30	3	10
7	30 x 3 = 90	10	Jack
8	90 + 10 = **100**	Jack	

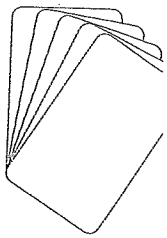
Race to 100 Scorecard

Name:			
Turn	**Played**	**Cards**	
		Retained in hand	Drawn from deck
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			

Race to 100 Scorecard

Name:			
Turn	**Played**	**Cards**	
		Retained in hand	Drawn from deck
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			

Practice Pack



Purpose

- Recall basic multiplication facts.
- Use known multiplication facts to work out unknown table facts.

Materials

- Deck of playing cards (picture cards removed)
- Split the deck into 2 packs.
  Pack (1) - 3 sets of cards. Ace to 10.
  Pack (2) - 1 set of cards. Ace to 10.
- Ace = one.

Organisation

A game for one to three players.

Aim

To recall multiplication facts and win the most cards.

Rules

- The player(s) place the two packs (one containing thirty cards and one containing ten cards) side by side.
- One card from the ten card pack is flipped over. The value shown on the card indicates the table to be practised for the round.
- Cards are then flipped over from the pack of thirty and the product of the two cards is calculated.
- Players keep the cards for the table fact they correctly answer.
- Play continues until the pack of thirty is exhausted.
- The pack of thirty is then shuffled and placed face down on the table.
- Another card is flipped over from the pack of ten to set the table to be practised for the second round.

Variation

- Add the values on the card instead of multiplying them.
- Give each player a set of ten cards instead of using one pile of thirty.

Teacher notes

Students need to understand and use the language associa with multiplication such as product, multiple, factors, divisibi

Allow those students who are less confident with table facts use a table fact grid as support.

Double-Double-Double

From 2x » 4x » 8x using 0 - 9 dice

Purpose

To develop the ***double-double-double strategy*** for ***linking the two*** and ***four and eight times table.***

Materials

Double-Double-Double playing board, counters in two different colours, one ten-faced dice.

Organisation

Two players.

Rules

- The aim of the game is to cover three numbers in a row, either horizontally, vertically, or diagonally.
- The first player rolls the die and either chooses to *double*, *double-double* or *double-double-double* the number. For example, if a 3 turns up, the player may *double* it to make 6 and cover the 6 with a counter. Alternatively, the player may choose to *double-double* the 3 to make 12 and cover that number. Further, the player may *double-double-double* the 3 to make 24.
- The second player rolls the dice and does the same. If a number is already covered, the player cannot place another counter on the same spot.
- Play continues until one player has three counters in a row, diagonally, horizontally or vertically.

0	12	28	10	72	16
18	6	20	64	2	40
8	24	36	14	0	4
4	16	32	8	16	48
56	12	24	0	32	8

Player one

Player two

Player one wins

Variations

- Change dice; six-faced, twelve-faced. Different playing boards are provided.
- Change to four in a row, instead of three.
- Allow a bump-off rule. That is, if a player has a counter on a particular number and the opposing player makes the same number, he or she can remove the opposing player's counter.
- Allow a double up rule, where a player who forms a number and finds the cell occupied by an opponent's counter may place his or her counter on top of the opponent's counter, so that both occupy the same position.
- Redesign the board by placing the same numbers in different positions. Discuss whether this makes a difference to the game playing. Try changing the numbers.

D-D-D *From 2x » 4x » 8x*

1 - 6 Board

					8						
				16		32					
			4		20		6				
		40		24		24		10			
	12		2		48		4		12		
4		24		8		8		16		24	
	16		40		12		8		12		32		6	
8		10		4		48		16		2		20		8

Doubling

From 3x » 6x using 0 - 9 dice

Purpose

To develop the ***doubling strategy*** for linking the ***three*** and ***six times tables***.

Materials

Doubling 3x » 6x playing board, counters in two different colours, one ten-faced dice.

Organisation

Two players

Rules

- The aim of the game is to cover three numbers in a row, either horizontally, vertically, or diagonally.
- The first player rolls the 0 - 9 dice and ***multiplies the number shown by three***. That is, if a 7 is rolled the player would state *"seven threes are twenty-one"*. The player may either place a counter on 21 or choose to double the result. If the player chooses to double the 'three times table fact' to create a 'six times table fact', he or she would state *"seven threes are twenty-one, therefore seven sixes will be forty-two."*
- The second player rolls the dice and does the same. If a number is covered already the player cannot place another counter on the same spot.
- Play continues until one player has three counters in a row, diagonally, horizontally or vertically.

0	12	27	9
18	6	15	48
3	24	36	21
54	18	6	24
30	12	42	0

Player one

Player two

Player one wins

Variations

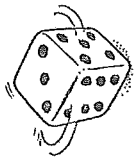
- Play with different dice; six-faced, twelve-faced. Playing Boards are provided for this purpose.
- Change to four in a row, instead of three.
- Allow a bump-off rule, that is, if a player has a counter on a particular number and the opposing player makes the same number, he or she can remove the opposing player's counter.
- Allow a double up rule, where a player who forms a number and finds the cell occupied by an opponent's counter, may place his or her counter on top of the opponent's counter, so that both occupy the same position.
- Redesign the board by placing the numbers in different positions. Discuss whether this makes a different to the game playing.

Doubling *From 3x » 6x*
1 - 6 Board

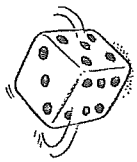
3	36	6	30	9	24
6	18	12	18	12	15
36	3	6	24	18	6
9	12	18	12	30	15

Doubling *From 3x » 6x*
1 - 6 Board

3	36	6	30	9	24
6	18	12	18	12	15
36	3	6	24	18	6
9	12	18	12	30	15



Mini Multi



Purpose

Children will improve their recall of basic multiplication facts.

Materials

Two six-faced dice per pair of players. A multiplication grid playing board.
Sets of two different coloured counters.

Organisation

Two players.

Aim

To cover three cells in a row.

Rules

- Players take turns to throw the two dice and multiply the two numbers that are shown. For example, a player might roll a 3 and a 5. The player chooses to place a counter on 3 fives or 5 threes.
- Player two takes a turn, rolls the two dice and places a counter on the answer.
- If a cell is occupied already the other player's counter may be removed from the board.
- The winner is the first player to cover three products in a row, column or diagonal.

Variations

x	1	2	3	4	5	6
1	1	2	3	4	5	6
2	2	4	6	8	10	12
3	3	6	9	12	15	18
4	4	8	12	16	20	24
5	5	10	15	20	25	30
6	6	12	18	24	30	36

○ Player one

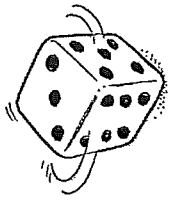
□ Player two

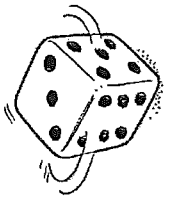
Player one wins.

- Change the game board to a blank grid; that is with no products filled in.
- Change the dice: for example, two ten-faced dice or two twelve-faced dice or mix and match various dice.
- A blank playing grid has also been provided so different combinations of dice may be used. For example, a 7 – 12 dice may be used and appropriate numbers filled in on the playing board. If children are encouraged to make their own board they will learn more. It will provide ***an opportunity for teachers to assess*** children's tables knowledge.

Mini Multi Board

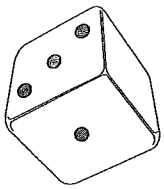
6 x 6





x	1	2	3	4	5	6
1	1	2	3	4	5	6
2	2	4	6	8	10	12
3	3	6	9	12	15	18
4	4	8	12	16	20	24
5	5	10	15	20	25	30
6	6	12	18	24	30	36

Multiple Madness



x1

Purpose
- Identify multiples of a given number.
- Observe patterns created on 100 grid (if coloured).
- Identify numbers that have some same multipliers.

Materials
Six-faced dice.
Playing board.

Organisation
Two - four players.

Aim
To be the first player to reach or exceed 100.

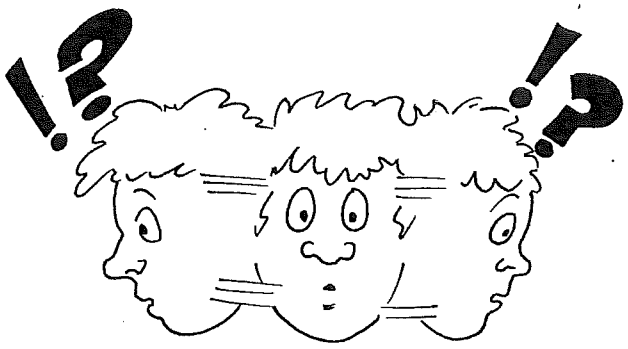
Rules
- Prior to starting the game a multiple is chosen, *(e.g. 3).*
- Players take turns to roll the dice and move along the gameboard.
- If a player lands on a multiple of the chosen number *(e.g. 3, 6, 9, 12 ...)* then he/she is given another turn.
- The winner is the player to reach or pass 100.

Teacher notes
A multiple of a given counting number is any number into which it will divide without a remainder.
E.g. multiples of 3 are 0, 3, 6, 9, 12 ...

Students could be asked to colour the multiples for a given number in one colour before playing the game. They could look at the pattern they created on the playing board. Multiples of another number could be coloured in a different colour on the board.

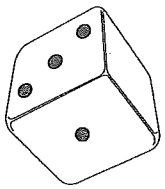
Variations
- Start at 100 and subtract until reaching zero.
- Use different dice, e.g. four, eight, ten or twelve-faced dice to speed up or slow down the game.
- Play mixed multiples, choose two multiples, *e.g. 3 and 7.* Players could miss a turn if landing on 21, 42, 63 and 84.

Multiple Madness Playing Board



100	99	98	97	96	95	94	93	92	91
81	82	83	84	85	86	87	88	89	90
80	79	78	77	76	75	74	73	72	71
61	62	63	64	65	66	67	68	69	70
60	59	58	57	56	55	54	53	52	51
41	42	43	44	45	46	47	48	49	50
40	39	38	37	36	35	34	33	32	31
21	22	23	24	25	26	27	28	29	30
20	19	18	17	16	15	14	13	12	11
1	2	3	4	5	6	7	8	9	10

Make 100



x2

Purpose

- Use numbers and operations in various combinations to represent whole numbers.
- Add two-digit numbers to a cumulative total using mental strategy.

Materials

Two six-faced dice.
Paper and pencil.

Organisation

Two players.

Aim

To achieve a total of 100 or as close to 100 as possible.

Rules

- Players take turns to roll the two dice and may combine them with any operation to produce a score.
- Play continues until one player reaches 100 or decides to stop close to 100. Players finish the round to see if any player ends up closer to 100 or makes 100.
- The player who reaches 100 or is closest to 100 is declared the winner.
- Players should be encouraged to keep a record of their own choices and calculations.

For example:

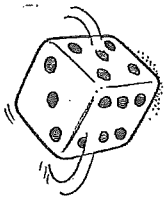
Dice Show	Calculation	Running Total
3 & 5	3 x 5 = 15	15
6 & 3	6 x 3 = 18	33
1 & 4	1 + 4 = 5	38
2 & 6	2 x 6 = 12	50
2 & 4	2 x 4 = 8	58
6 & 5	6 x 5 = 30	88
1 & 1	1 + 1 = 2	90
4 & 4	4 + 3 = 7	97
5 & 2	5 – 2 = 3	100

Teacher notes

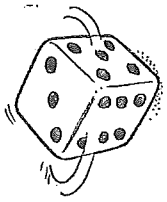
Players may choose to use any operations, although most select multiplication early on in the game and then other operations later in the game.
A discussion of what the term 'close to' means would be valuable. Some students believe that to be 'close to' a number implies being below the target number.

Variations

- Vary the type and number of dice used.



Hide and Seek



Purpose

To link multiplication and division. For example, the following facts are all related 6 x 4 = 24, 4 x 6 = 24, 24 ÷ 6 = 4 and 24 ÷ 4 = 6. The children will make use of inverse operations to solve these questions, or children may think 6 x ? = 24, etc.
To link addition and subtraction (variation).

Materials

Two six-faced dice per pair of players and a barrier.

Aim

To win as many points as possible by correctly working out the missing number.

Organisation

Two players.

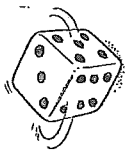
Rules

- Player One rolls the two dice behind a book or barrier. (eg **6 and 4**)
- Player One then multiplies the two numbers and writes the answer on a piece of paper for Player Two to see. (**24**)
- Player One shows Player Two one of the two dice, keeping the other one hidden. (**6**)
- Player Two has to 'work out' the number shown on the other dice. (**4**)
- If Player Two answers correctly he/she scores a point.
- Players swap roles.
- Play continues for ten rolls each. The player with the most points is the winner.

Variations

- A simpler game would involve adding the numbers on the two dice.
- Change the dice to 8, 10, 12 or twenty-faced dice, or a mix of these.
- Guess the numbers with no clues given.
- Less confident students could refer to a multiplication or addition grid.

Multiple Move On



Purpose

Children will recognise multiples. Children will develop their ability to count in multiples.

Materials

One six-faced dice per pair of players. A Multiple Move On playing board per pair of players. Sets of two different coloured counters. Less confident students could be given a multiplication chart.

Organisation

Two players.

Aim

To reach the finish 'F' first.

Rules

- This game is played in much the same way as Snakes and Ladders, where landing on a particular place on the board provides a boost, while landing on another part of the board sends you backwards.
- Two multiples are chosen at the start of the game. For example, if players require practice with the multiples of 6 and 9 these could be chosen. One multiple is chosen as the ***fast forward multiple*** and the other as the ***rewind multiple***.
- Players take turns to roll the dice and move the counter forward the number of spaces indicated.
- *If a counter lands on one of the chosen multiples, then the player either jumps (fast forward) to the next multiple of that number or goes back (rewinds) to the previous multiple of that number.* For example, if a player is on 14 and throws a four, he/she moves to 18. If 6 had been chosen as the fast forward multiple, then the player would fast forward to 24.

Starting point

Moves on 4

Fast Forward 6 places

F	98	97	96	95	94	93	92	91	90
80	81	82	83	84	85	86	87	88	89
79	78	77	76	75	74	73	72	71	70
60	61	62	63	64	65	66	67	68	69
59	58	57	56	55	54	53	52	51	50
40	41	42	43	44	45	46	47	48	49
39	38	37	36	35	34	33	32	31	30
20	21	22	23	24	25	26	27	28	29
19	18	17	16	15	14	13	12	11	10
S	1	2	3	4	5	6	7	8	9

- *If a player lands on a multiple of the rewind number, then he/she would return to the previous multiple of that number.* For example, if a player is on 60, throws a three and lands on 63 and the rewind multiple was 9, then the player would go back to 54. Note that 54 is both a multiple of 6 and 9, but because the player did not initially land on this number the dual multiple rule does not apply.

Starting point

Moves on 3

Rewind 9 places

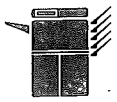
F	98	97	96	95	94	93	92	91	90
80	81	82	83	84	85	86	87	88	89
79	78	77	76	75	74	73	72	71	70
60	61	62	63	64	65	66	67	68	69
59	58	57	56	55	54	53	52	51	50
40	41	42	43	44	45	46	47	48	49
39	38	37	36	35	34	33	32	31	30
20	21	22	23	24	25	26	27	28	29
19	18	17	16	15	14	13	12	11	10
S	1	2	3	4	5	6	7	8	9

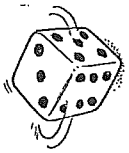
- If a player lands on the ***first*** multiple of the rewind number, then the player would have to go back to the start. For example, if the rewind multiple was 9 and a player lands on 9 then he/she would have to move their counter back to the start.
- *If a player lands on a multiple of both numbers,* (In the case of 6 and 9 this would be the numbers, 18, 36, 54, 72 and 90) *then the player could be given an extra turn.*
- The winner is the first player to make it to the end of the playing board.

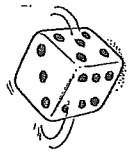
Variations

- The game may be simplified by using only a single multiple and only moving forward when landing on it.
- A playing board with specific multiples marked on it may be used to support players who require it. A sample of such a board has been provided.
- Change the pairing of multiples. Children will learn a great deal by making their own Multiple Move On Boards.

Multiple Move On Blank Board







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79	78	77	76	75	74	73	72	71	70
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59	58	57	56	55	54	53	52	51	50
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39	38	37	36	35	34	33	32	31	30
20	21	22	23	24	25	26	27	28	29
19	18	17	16	15	14	13	12	11	10
S	1	2	3	4	5	6	7	8	9

Enlarge to A3