



*Maths games and activities to
help your child's learning...*

Enjoy!

DICE GAMES



Dice games are fun! They are also one of the oldest of all kinds of games: there are records of dice being played over 5,000 years ago! Dice have been found in Egyptian tombs and were very popular in Roman times.

Dice games are versatile. They can be based on luck, or on skill and planning. You can find games to play with two players or twenty, on a table or on the floor, with 3-year olds and with 70-year olds!

Dice games are educational. They are educational in numerous ways, for example encouraging counting and numbers in young children and quick mental calculation in older children.

But they are also excellent at reinforcing the concept of taking turns, scoring (both mental and on paper), winning and losing gracefully, patience and so much more. By the time your child reaches 7 or so they may even be able to resist hurling the dice onto the floor or all over the table on each and every go (although it is at this point that the temptation to try and manipulate the dice also begins to show itself!)

Dice games are portable. You can always find room for a few dice in the bottom of a handbag or pocket.

BEAT THAT

Skills:

Number

Place value

Strategic thinking

Equipment:

2 dice (more for older players)

Paper and pencil for scoring

Roll the dice and put them in order to make the highest number possible. If you roll a 4 and a 6, for example, your best answer would be 64.

Using 3 dice, a roll of 3, 5 and 2 will give you 532, and so on.

4 dice will make 4 digit numbers.

Decimal numbers can also be made 4.2 or 2.4, 25.5, 25.5, 2.55, 55.2, 5.52 etc.

Write down your answer, pass the dice, and challenge the next player to 'Beat That!' Play in rounds and assign a winner to each round.

For a change, try making the smallest number possible! This is a great game for reinforcing the concept of place value. If you are playing with younger children, explain your reasoning out loud and encourage them to do the same.

LET'S ORDER

Games for younger children:

1. Each player rolls a dice. The first player to identify the highest number rolled wins a point. If all players roll the same number the game is ended and the winner is the player with the most points.
2. Each player rolls 2, 3, 4 or even 5 dice and arranges them in order from the lowest to the highest. If a double is rolled the dice can be placed side by side or one of the dice rolled again until a number that can be placed is rolled. The player who orders them correctly first wins a point for that round.
3. Dice can be ordered from highest to lowest.

ADDERS

2 dice (more for older players)

1. Roll the dice and add the numbers rolled eg $6 + 2 = 8$ or because addition is commutative (we can swap the numbers around and still get the same answer) $2 + 6 = 8$. If the numbers rolled are the same eg 6 and 6, children can be encouraged to say double 6 is 12. Whoever makes the largest total wins that round.
2. Three or even more dice can be rolled to practise adding 3 or more single digit numbers.
3. Each dot on the dice has a value of 10, 100 or even 0.1 allows practice with other numbers.

TAKERS

Players roll two dice and subtract the smallest number from the highest number rolled. The player with the lowest answer wins a point for that round.

LET'S MULTIPLY

Roll the dice and multiply the numbers eg 3,2... 3×2 or 2×3 because multiplication is also commutative. The player who makes the highest number wins that round.

Three dice can be rolled to practise multiplying 3 single digit numbers.



$$5 \times 1 \times 5 = 25$$

Shut the Box

You will need

- one or more players
- 2 dice
- paper and pencil

Write the numbers 1 through 9 in a horizontal row on the paper...



1 2 ~~3~~ 4 5 6 7 ~~8~~ 9



Player 1 rolls the dice and, adding the numbers together, calculates the sum of the two numbers. Player 1 then chooses to cross out numbers that have the same sum as that calculated from the dice roll. If the numbers 7, 8 and 9 are all covered, player 1 may choose to roll one or two dice. If any of these numbers are still uncovered, the player must use both dice. Player 1 continues rolling dice, calculating the sum and crossing out numbers until they can no longer continue. If all numbers are crossed out the player says "shut the box". If not all numbers are crossed out player 1 determines the sum of the numbers that are not crossed out and that is their score. If "shut the box" is achieved, player 1 records a score of "0".

Player two writes the numbers 1 through 9 and follows the same rules as player 1. The player with the lowest score wins.

Variation

Player 1 and 2 can choose to play 5 rounds, totalling their score at the end of each round. The player with the lowest total score wins the game.

PLAYING CARDS

WHAT'S IN A PACK?

Sort and count the cards in different ways...

- red or black?
- hearts, clubs, diamonds or spades?
- picture card or number card?
- odd numbers or even numbers?
- which number or value?



Twenty-five

A game for 2 or 3 players

Shuffle the 40 number cards and deal them out.

Players take turns to turn their top card over and place in a pile in the middle. As a player places their card they add it to the total of the cards already in the middle. The player whose card makes the total 27 or more wins those cards and puts them at the bottom of their pile.

This game is good practice for crossing the tens numbers. For older children the winning total could be increased to 57 or even 107. To encourage further mathematical thinking include the jokers in the pack – as they are turned over the player chooses the value with the aim of helping them to win that hand.

THREE DIGIT DEALS

A game for two or three players. You need the number cards from 1 to 9 from each suit.

Shuffle the cards and deal three to each player.

Whoever can make the largest 3-digit number with their cards wins a point.



943



762

Used cards are placed on the bottom of the pack and play continues until one player has scored 10 points.

Close Call: An Addition Game

Players create numbers as close to 100 as they can, without going over. This requires them to evaluate all possible totals, based on the numbers given. Children will learn common patterns in addition as they work out the best plays. Try talking through the game with your children, asking what they're thinking as they select their cards, and making discoveries together!

What You Need:

- Deck of cards with the 10s and face cards removed – ACE is 1
- Paper and pencils (for jottings and scoring)

How to play:

1. Shuffle the deck and deal each player 6 cards.
2. Each player selects four of their cards and creates two 2-digit numbers from them. The goal is to create two numbers that make a total as close to 100 as possible, without going over.
(For example, a player may choose to use the cards 4, 6, 8, and 1, creating the number sentence $14 + 86 = 100$.)
3. After players have made their selections, they place their cards face up in front of them, arranging them so other players can see which two numbers they have created.
4. The player with the numbers closest to 100, without going over, wins a point. In the case of a tie, a point is awarded to each player.
5. Shuffle the cards before dealing another round.
6. Play continues for 5 rounds. The player with the most points after the last round wins the game.

Variations:

- Change the number of cards dealt, the number of cards used, or the goal.
- For younger players, restrict the number of cards dealt to 4 per player, allow them to use only 2 of the cards, create single-digit numbers, and set the goal to 10.
- To make the game more challenging, deal 8 cards to each player, let them choose 6 to create 3-digit numbers, and set the goal to 1,000.

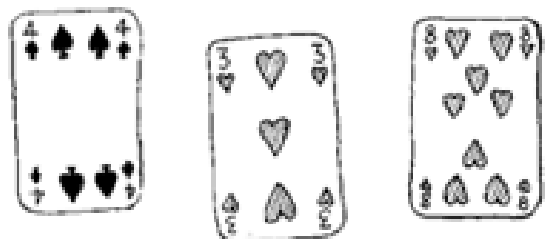
DECIMAL DIFFERENCES

You need the 1 to 9 cards from each suit and two players.
Shuffle the cards thoroughly.

Deal three cards to each player. Use the digits to make a number with two decimal places. Make this number have as big a difference from 10 as possible.

Each player scores the difference between the decimal number made and 10.

The winner is the first player to score a total of more than 20.



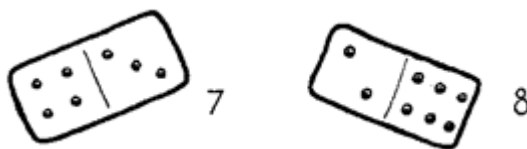
$$10 - 3.48 = 6.52$$

DOMINO GAMES

COUNT UP (younger players)

You need 2 players

Spread all the dominoes face down on the table. Choose a domino and count the spots.



Whoever has the highest number of spots keeps both dominoes. If the total is the same, keep one each.

Carry on until you have used all the dominoes and see who wins the most.

Multiplication War

1. Players begin with dominoes face down.
2. Each player chooses a domino.
3. On the count of three, they turn over their domino and multiply the dots on one side by the dots on the other side. The player with the highest product wins the dominoes.

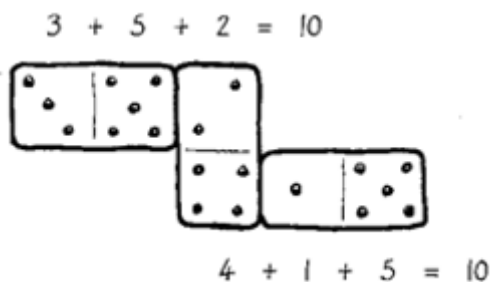
Even/Odd Sort

1. Add, subtract, or multiply the dots on the dominoes then sort the answer by odd or even numbers.
2. Want to make it a game? Before the game begins state a rule. The player with the most even numbers or odd numbers wins the set.



ZIG-ZAGS

Use three dominoes to make a zig-zag where the spots in each row add up to 10.



How many different zig-zags can you make?

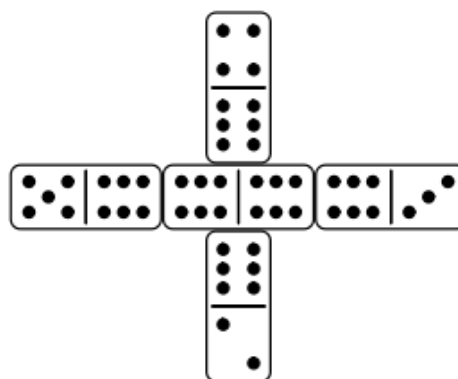
What do all the spots in each zig-zag add up to?

DOMINO DASH

Play a normal game of dominoes. Players can choose what to do with the numbers on the ends.

Eg A player who has just placed the 5 and 6 on the left could choose to add... $5 + 3$, subtract... $5 - 3$ or multiply... 5×3 .

Rules can be agreed at the start of the game...



1. A target of 50 could be set and players add the numbers they have made. Whoever reaches 50 first is the winner.

2. Odd numbers made score 1 point and even numbers score 2 points. The player who has the most points at the end of the game is the winner.

SNAKES AND LADDERS

The game is played with a die and one counter per player. The die is rolled and the player counts that many 'jumps' along the board. The winner is the first player to land on the final square.

Play the game but rather than counting on encourage children to 'calculate' their move. Eg If a counter is positioned on 28 and 5 is rolled, the calculation would be $28 + 5 = 33$. The counter is picked up and placed on 33.

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

VARIATIONS

Play with two dice and the players choose which operation to use. Eg if 6 and 5 is rolled a player can make the total of 11 ($6 + 5$), 1 ($6 - 5$) or 30 (6×5). Strategic thinking is encouraged because if a player's counter is on 82, moving on 11 spaces would be a better move than moving on 30 which would take the player off the board and lose the game!

Start the game with counters positioned on the 'finish' square and use subtraction to move along and down the board. The winner is the first to reach the 'start' square. Landing on a snake can help you to win the game whilst landing on a ladder puts you further back!

EVERYDAY MATHS



Go shopping with your child to buy two or three items. Ask them to work out the total amount spent and how much change you will get.

Buy some items with a percentage extra free. Help your child to calculate how much of the product is free.

Plan an outing during the holidays. Ask your child to think about what time you will need to set off and how much money you will need to take.

Use a TV guide. Ask your child to work out the length of their favourite programmes. Can they calculate how long they spend watching TV each day / each week?

Use a bus or train timetable. Ask your child to work out how long a journey between two places should take? Go on the journey. Do you arrive earlier or later than expected? How much earlier/ later?

Help your child to scale a recipe up or down to feed the right amount of people. Work together to plan a party or meal on a budget.

Make a model using boxes/containers/lego of different shapes and sizes. Ask your child to describe their model.

Practise measuring the lengths or heights of objects (in metres or cm). Help your child to use different rulers and tape measures correctly. Encourage them to estimate before measuring.

Let your child help with cooking at home. Help them to measure ingredients accurately using weighing scales or measuring jugs. Talk about what each division on the scale stands for.

Choose some food items out of the cupboard. Try to put the objects in order of weight, by feel alone. Check by looking at the amounts on the packets.

Practise telling the time with your child. Use both digital and analogue clocks. Ask your child to be a 'timekeeper' (e.g. tell me when it is half past four because then we are going swimming). Use a stop clock to time how long it takes to do everyday tasks (e.g. how long does it take to get dressed?). Encourage your child to estimate first.



For more help to develop your child's maths skills, from the early years to KS2 SATs visit...

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