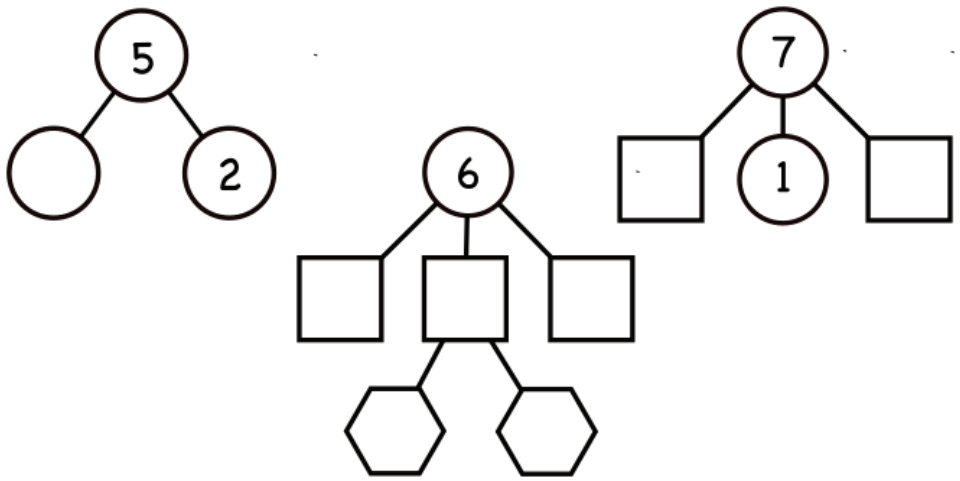
A ♣

# Mystery Change

Count a small number of objects. Out of sight, remove or add some objects. When your child looks back, ask what change you made. Test their theory by reenacting it. Once this becomes easy, play with trickier answers. Example: If 4 became 6, perhaps you doubled the 4 and then took 2 away.

2 ♣

# Shape Sums




Every shape is the sum of the shapes connected directly below it. Any shape, other than a circle, has the same value as the same shape throughout the puzzle.

♣ ♣

3 ♣

# Bingo With 10's

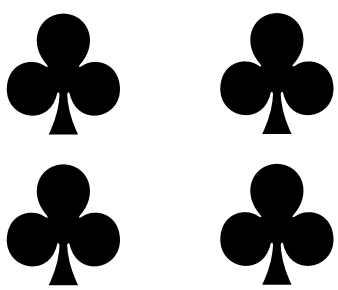
Place a random group of 16 cards numbered from 0 to 20 on a 4 by 4 grid for each player. Select one card from a pile of cards numbered from 0 to 20. A card "matches" and is flipped over when it is 10 apart from this card. The first child who gets four flipped cards in a row yells "Bingo!"

♣ ♣ ♣

4 ♣

# Memory Challenge – 10's

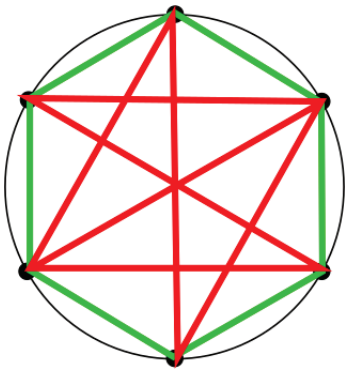
Use cards from 0 to 20 placed face down in a 4 by 4 array. Cards match if they are 10 apart. On a turn, flip over two cards. If the cards match, keep the cards, replace them from the draw pile, and continues. If the cards don't match, flip the cards over and end the turn. The player with the most cards wins.



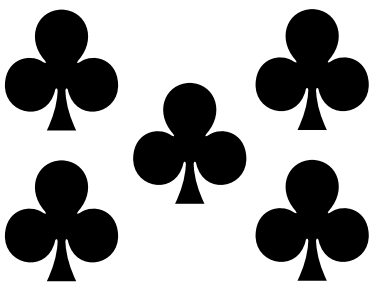
5 ♣

# Sim Triangle

Place six dots evenly around a circle. Two players use colored markers. Players take turns drawing lines between dots using their color.

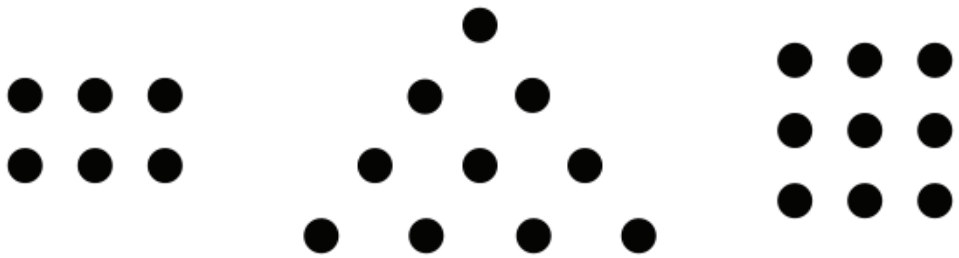


The first player to create a triangle all in their own color loses. In the game shown, green moves next and must lose.

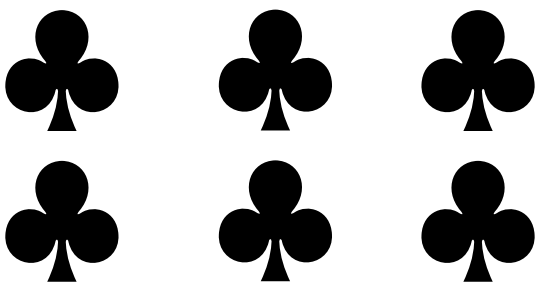


6 ♣

# Number Shapes



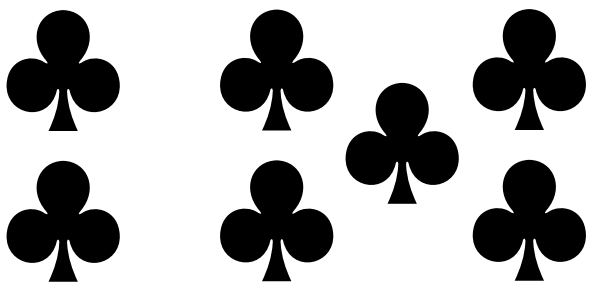
Let your child play making shapes with small items. Example shapes are rectangles, triangles, and squares. Investigate which numbers are even and odd by putting the pieces in two matched rows – for which numbers does it work out?



7 ♣

# Nim – Doubling the Limit

Set a starting total, say 20. Let your child choose whether to go first. For the first turn, a player chooses to subtract 1 or 2 from the total. After the first turn, a player may subtract any number from 1 up to twice the last number. The first person to reach 0 wins. This can also be done with adding, start at 0.

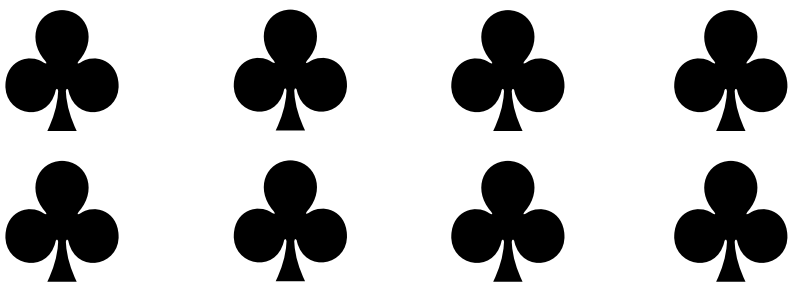


8 ♣

# Skip Counting by 2's

Skip count up or down by 2's ending by 20. Initially, do this starting at 0 or 20; eventually, start anywhere.

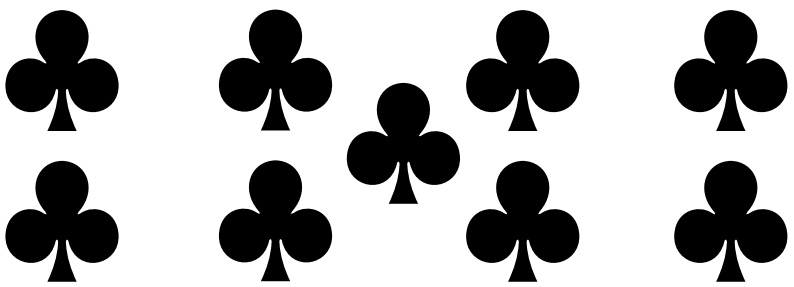
**Skip couning on swings:** Start by alternating with your child – you say 1, your child says 2, you say 3, your child says 4. After establishing the pattern, one of you can say their part without the other.



9 ♣

# Halves and Half Nots

Set a target number, say 20; set the total to 0; and choose who goes first. On a turn, generate a number using one or two dice. If the number is odd, double it; if even, take half of it as many times as desired while possible. Add this to the total if not over the target, otherwise skip the turn. The player who exactly reaches the target wins!

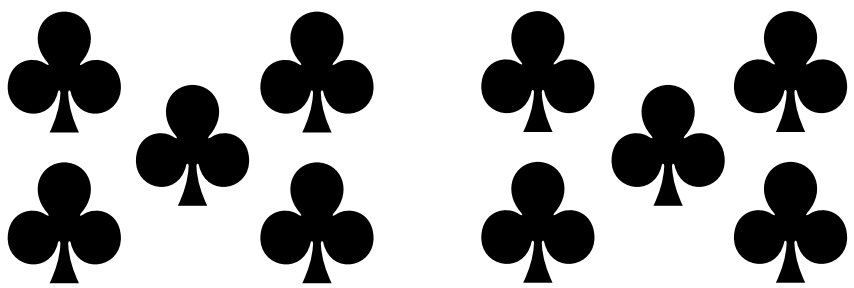


10 ♣

# Sum Groups

**THE CHALLENGE:** Set the target at 6. Break this square into groups of two or three numbers that add up to 6. A group's numbers must share sides. Is there only one way to solve this?

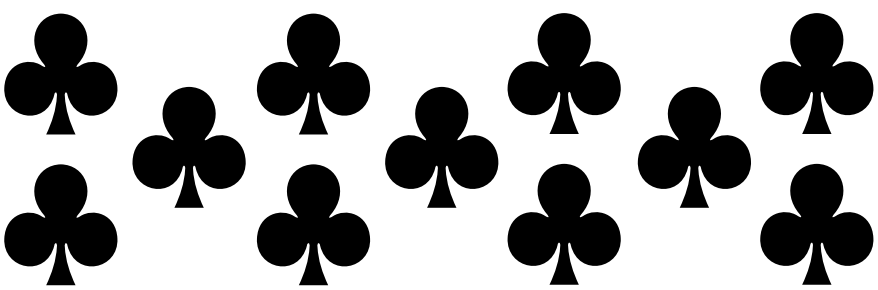
| | | | |
|---|---|---|---|
| 1 | 5 | 2 | 4 |
| 3 | 2 | 1 | 5 |
| 1 | 2 | 3 | 1 |
| 2 | 4 | 3 | 3 |



J ♣

# Go Fish! with Sums

Choose a target sum, say 10. Deal 5 cards to each player; the rest to a draw pile. Cards match if they sum to the target. A player asks any player if they have a card – if so, all requested cards are handed over; otherwise, pick a draw pile card. If a match occurs, put the pair aside and keep going. The player with the most pairs wins.

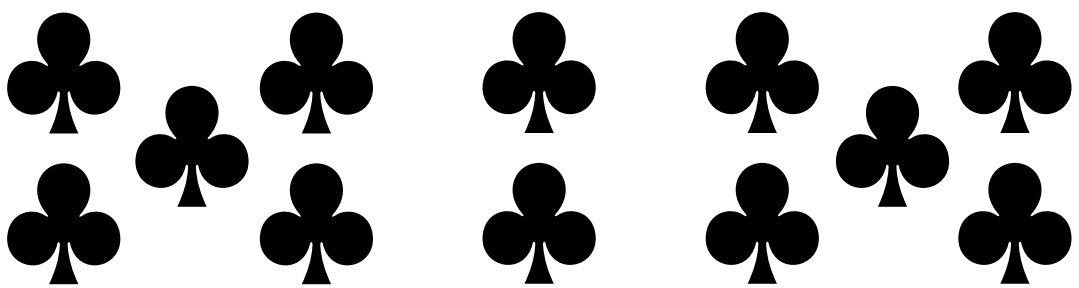


Q ♣

# Which Number am I?

**Adult with 2 children:** Each child picks a card to place on their forehead. Announce the sum of the cards. Each child figures out their card by looking at the other one.

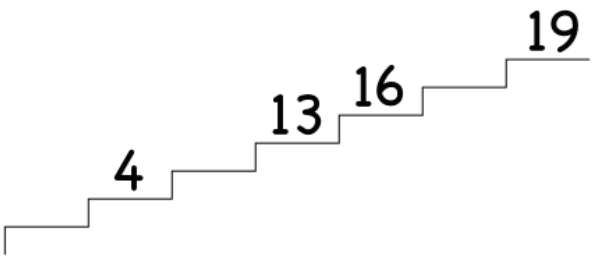
**Adult with one child:** Create pairs of cards that add up to the same total. Pick one random pair of cards, place the cards on your foreheads, and play as above.



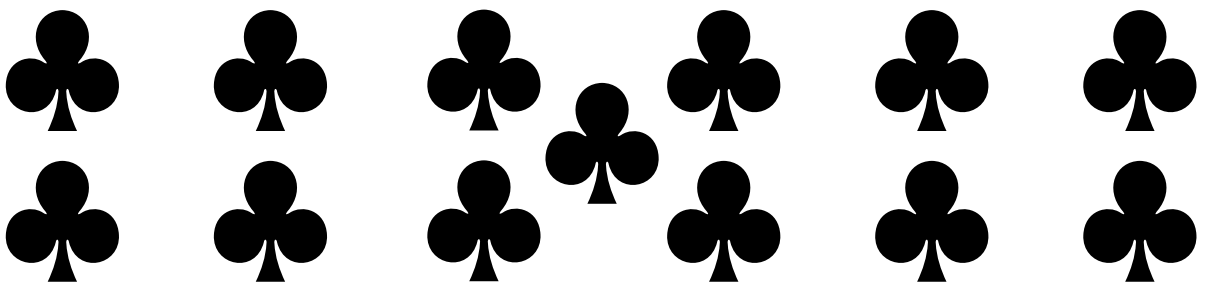
K ♣

# Going Up Stairs

Each player draws a staircase with 6 steps.




On a turn, use cards or dice to create a random number from 0 to 20. If possible, the player must place this 2-digit number on their steps. The first player to fill their steps in increasing order wins.



A

# Closest to 10

Choose a target , say 10. Start by dealing five cards face down. A player turns 3 cards over, and chooses 2 of those to add up close to the target. The other player chooses 2 of the remaining 3 cards to get close to the target. The player closer to the target, either above or below, wins a point. To practice subtraction, use the difference of the 2 cards.

2 ♦

# Zoo Rescue

Use dice or cards from 1 to 6. Each player a piece of paper with six boxes numbered from 0 to 5. Each player decides where to put their 6 tokens – it's okay to put more than one token in a box. During a turn, create the difference using two dice rolls or two cards. The player can free one token if they have one in that box. The first player to rescue all their tokens wins.

♦ ♦

3 ♦

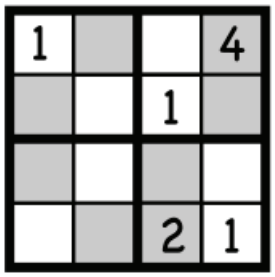
# Sums Race

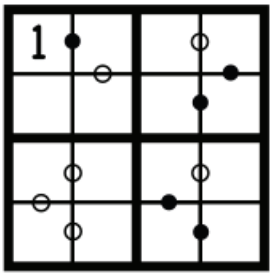
Make a sheet of paper with 12 rows. with 8 squares to a row. The leftmost column of squares has numbers from 1 to 12, with a token on each square. Each person selects a row they think will win. After each roll of a pair of dice, move the token for the sum of the dice one square to the right. A token's goal is to get all the way across the page.

♦ ♦ ♦

4

# Sudoku Variations



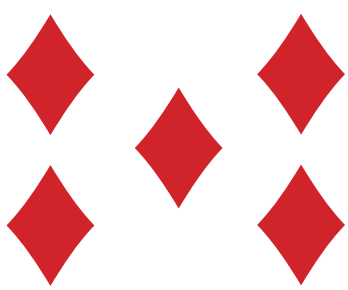




Numbers from 1 to 4 appear once in each row, column, and marked region. For Even-Odd puzzles, even-numbered squares are grayed. Kropki Sudoku uses hollow dots when 2 numbers are 1 apart, and filled dots when a number is twice the other.

5

# Shut the Box

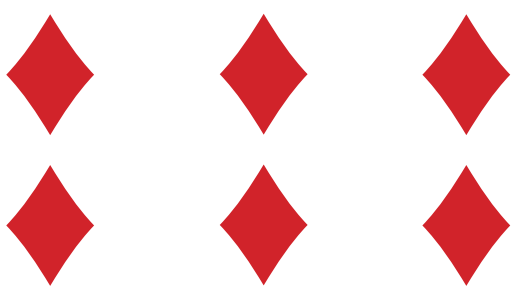
Each player has a paper with the numbers from 1 to 9. To start a turn, a player finds the sum of two dice. Using only uncrossed-out numbers, cross out a group of one or more numbers that add up to that sum. If this can't be done, nothing changes. A player may decide in advance to use just one die. The first player to cross out all numbers wins.



6

# Hit the Target

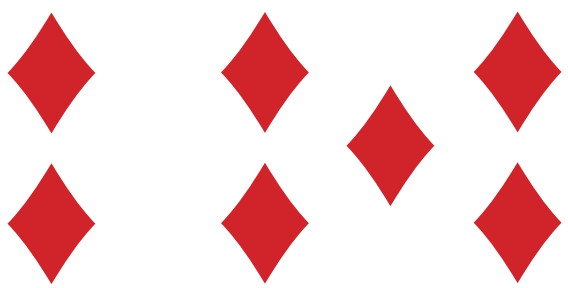
Select five cards and a sixth that is the target. Leave the remaining cards as a draw pile. During a turn, if the sum or difference of 2 (or 3) of the 5 cards equals the target, the player gets all 3 (or 4) cards, which are replaced from the draw pile. If the player fails, a new sixth card is turned over and the turn moves on. The player with the most cards wins.



7

# Hot Potato with Sums

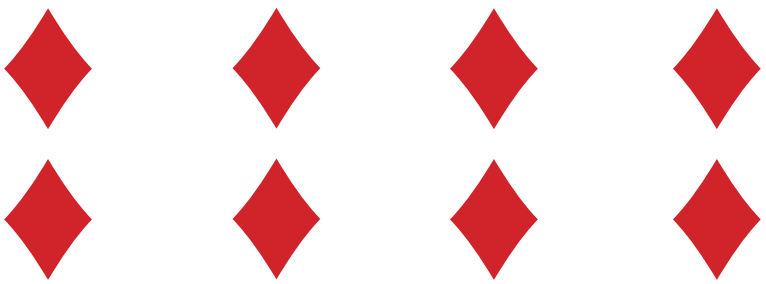
Select a target, say 5. Play with all cards below the target except for one, the "hot potato." Deal the cards to all players as equally as possible. Players start by putting all pairs that add up to 5 on the table. On a turn, pick a card from another player. If this creates a pair, place it on the table. When play ends, the player holding the hot potato loses.



8

# Any Which Way

Select a target, say 10. Each player is dealt 5 cards from a deck without face cards. Players then find as many ways as they can to get the target total using adding and subtracting with any of their cards to reach the target. This can also be enjoyed as a cooperative group activity.

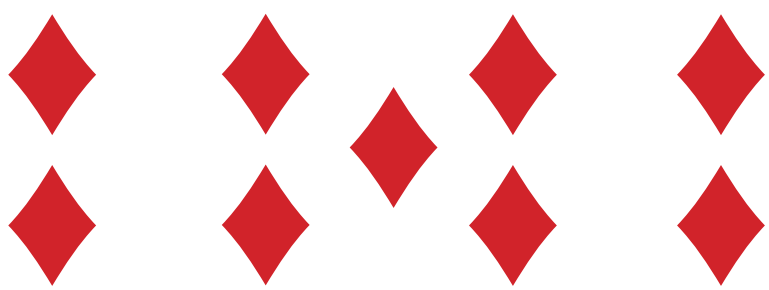


9 ♦

# Number Scramble

Roll two dice to create a two-digit target number. Roll 5 dice to have numbers to work with. Use addition, subtraction, and two-digit numbers, to get close to the target number – the score is how close they are.

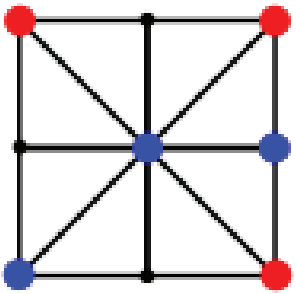
**Example:** With 4, 4, 3, 1, 3 and 22, one result is 14 + 4 + 3 + 3 = 24, for a score of 2.



10

# Tapatan

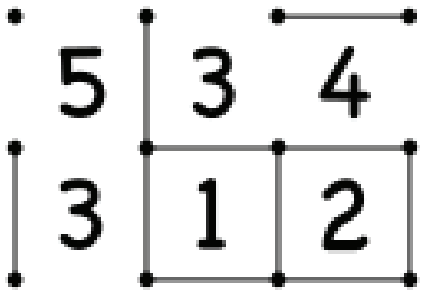
Each player has three tokens. The goal is to get your tokens in a line.



Start taking turns placing tokens on empty points. After that, players take turns moving their tokens to empty adjacent points. The game ends when a player wins or when the same position occurs three times, which is a tie .

J

# Numbered Dots and Boxes

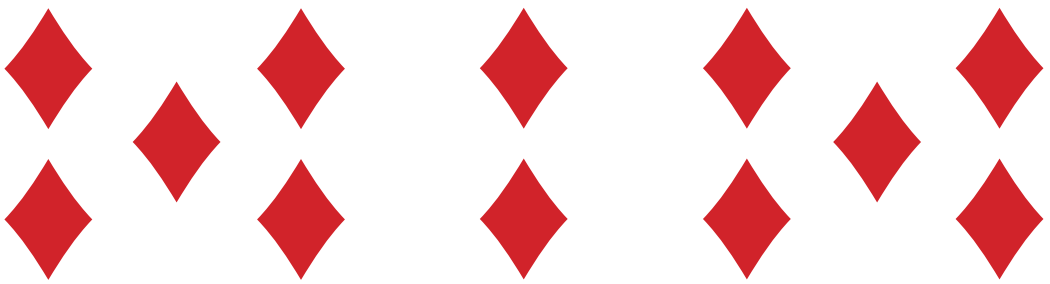



Use a grid of dots that has a number in each box. During a turn, draw a horizontal or vertical line connecting two adjacent dots. If the new line completes a 1 by 1 box, the player earns the number in the box and draws another line. Players need not complete available boxes. The player with the most points wins.

Q

# Pig

For a turn, roll a die as many times as you want. When a roll is not 1, you add that roll to your turn's total. If it is 1, you lose everything for that turn and the turn ends. A player may choose to stop before rolling a 1, and add the turn's points to their total. The first player to reach the target number, say 30, wins.



K

# Don't go Over

Use 5 dice and 4 rolls. On each roll, choose to save from 0 to all of the remaining dice. Once a die is saved it cannot be changed. On the fourth roll, all remaining dice are saved. Sum the dice – any score less than or equal to 20 counts, any score over 20 gives the player nothing.

A

# Finger Add – Compensation

Use **compensation** (take from one number to give to the other) to make sums easier between 11 and 18.

**Example:** 7 + 8. One person puts up 7 fingers and the other 8 fingers. Then, one person gives away as many fingers as needed to get 10 fingers on the other person's hands. For this, 7 + 8 turns into 5 + 10 or 10 + 5.

2 ♥

# Finger Add – Counting On

8

9

10

11

Use **counting on** to add. **Example:** 8 + 3. Have your child make a closed fist and say "8." Then, lift one more finger each time as your child counts out loud "9, 10, 11." When 3 fingers are raised the result is 11.

♥ ♥

3 ♥

# Finger Sub – Take Away

11 

10 

9 

8 

Subtraction can be thought of as **take away** or **difference**.

**Example:** 11 – 3 doing take away**.** Start with a closed fist and say "11." Then, lifting one more finger each time, count "10, 9, 8." When 3 fingers are raised, the result is 8.

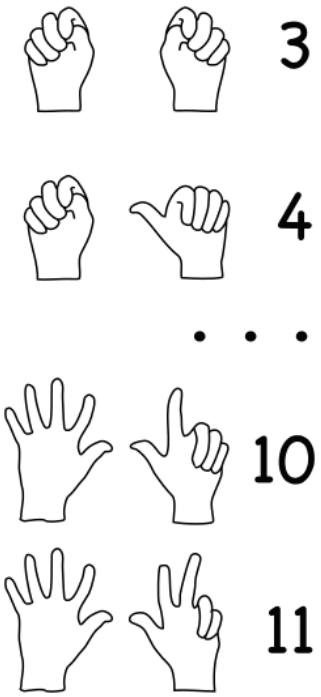
♥ ♥ ♥

4 ♥

# Finger Sub – Difference

Use **counting on**, as done for Finger Adding.

**Example:** Use counting on to find the difference of 3 and 11. Have your child make a closed fist and say "3." Then, lifting one more finger each time, count "4, 5, 6, 7, 8, 9, 10, 11." When your child says 11, there are 8 fingers raised.

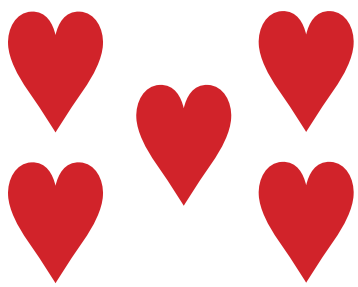



♥ ♥
♥ ♥

5 ♥

# War – Adding and Subtracting

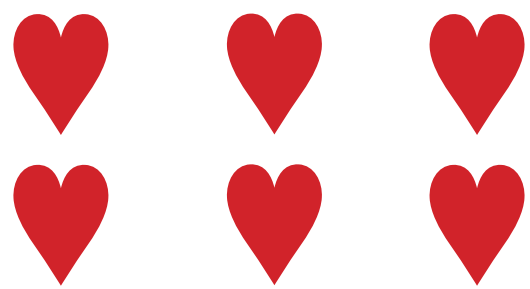
Evenly split a deck of cards with the face cards removed. The players turn over their top 2 cards and add them. The larger sum wins all the cards. If the sums are equal, the next 2 pairs of cards are added and the winner gets all 8 cards. The player with the most cards wins. For variety, use the difference of the 2 cards.



6 ♥

# Target Gin Rummy

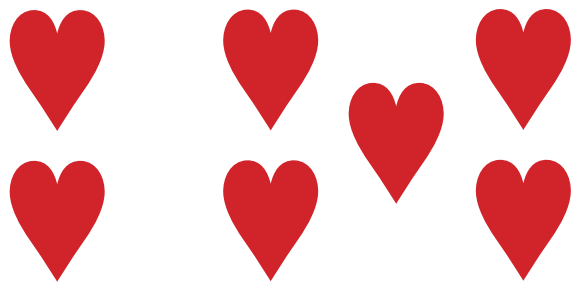
Set a target sum, say 10. Remove face cards, deal 7 cards to each player, the rest in a draw pile whose top card is flipped over for a discard pile. **The goal:** hold 7 cards that are in groups of one or more cards that add up to the target. During a turn, choose the top card of the discard pile or draw pile, and discard a card. When a hand is full, say "Gin!"



7 ♥

# Mental Add Steps

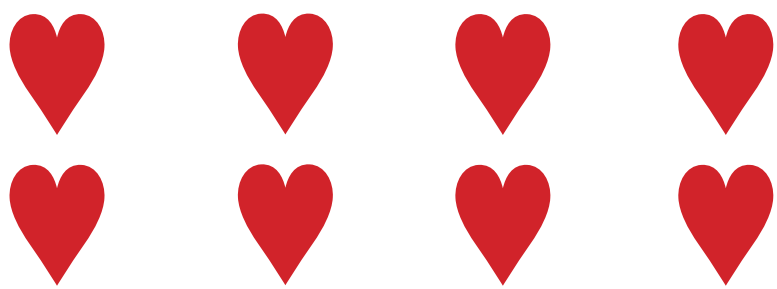
1) Add and subtract 0, 1, 2 (maybe 3)
2) Adding twins (e.g. 4 + 4) and near twins (e.g. 3 + 4)
3) Number bonds for 10 (e.g. 3 + 7)
4) Add 10 to single-digit numbers
5) Use compensation – take from one number to give to the other



8 ♥

# Mental Sub Steps

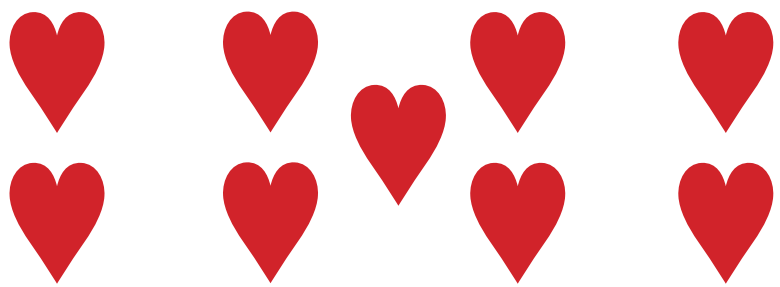
1) Add and subtract 0, 1, 2 (maybe 3)
2) Subtract numbers 1, 2, or 3 apart
3) Subtract from 10 using number bonds for 10
4) Subtract 10 from 11 to 19
5) Use 10 as an intermediate step: 15 – 8 is (15 – 10) + (10 – 8)
6) Use compensation: 9 – 4 = 10 – 5 (add something to both numbers)



9 ♥

# Cards to a Target

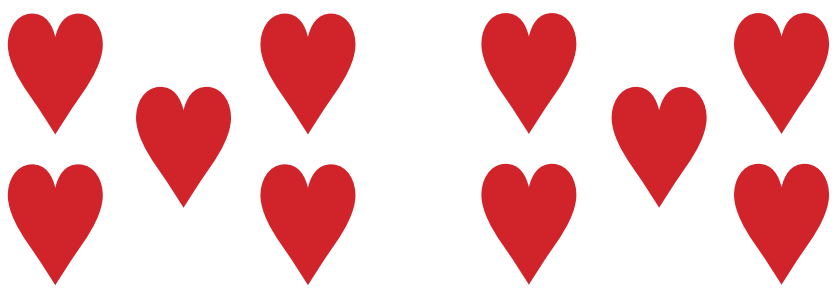
Start by laying out all the playing cards from 1 (ace) to 5 in a 4 by 5 grid. Start the running total at 0 and choose a target number, say 25. Players take turns choosing a card, adding it to the running total, and placing it aside. The last player to pick a number that does not go over the target wins. Use subtraction by starting at the target number.



10

# Get Out of my House - Add/Sub

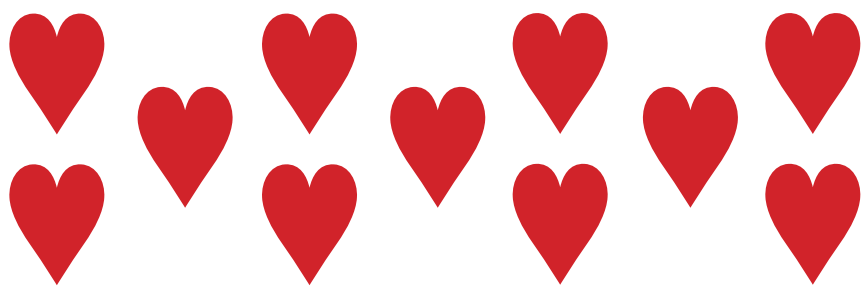
Use numbered cards. On shared paper, draw simple houses from '0' to '18.' Each player has 7 tokens. A player draws 2 cards, and chooses to add, subtract, or multiply to pick a house with fewer than 3 of the opponent's tokens. If the house contains 1 or 2 tokens, they are given to the opponent, saying "Get out of my house!" Place all tokens to win.



J ♥

# Short Steps to a Target

Create a random 2-digit number using two cards from 1 to 9. Start at that number and use 5 steps, each of which is either by 1 or 10, to get as close to 50 as possible. The score is the difference from 50. The lowest total score after several rounds wins. Vary this by using other step sizes.



Q ♥

# Math Tic-Tac-Toe

Use a Tic-Tac-Toe board and numbered tokens from 1 to 9. One player has the odd tokens and the other the even ones. Players take turns placing a token, with the Odd player going first. The first player to complete 3 in a row, using either player's tokens, whose sum is 15 wins.

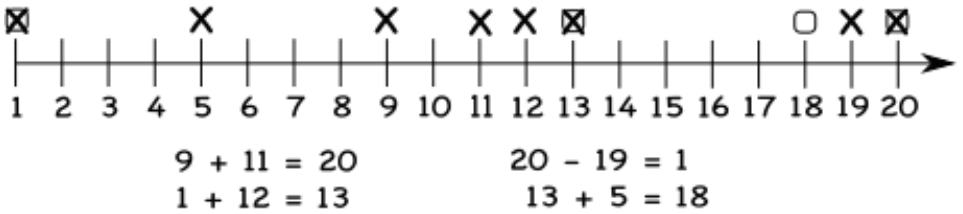
K

# Memory Challenge II

Deal a 4 by 4 grid of cards face down. Players take turns turning over 2 cards. If they match, the player keeps the pair, the cards are replaced, and the player goes again. If not a match, the cards are flipped and the turn ends. The player with the most cards wins. Matching can mean: 1) they are the same; 2) they sum to a target; 3) their difference is a target.

A

# Pairing Down

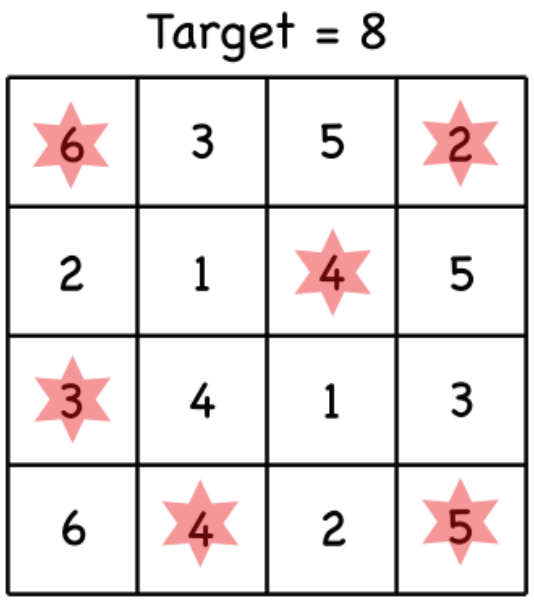



Use a number line from 1 to 20. Each turn makes an addition or subtraction equation with three uncrossed out numbers. The two numbers in the equation are crossed out, and the result is circled. The next player must use the result as one of the two numbers. The last legal move wins.

2 ♠

# Fix It

Start with a 4 by 4 grid of numbers and a target sum. Find entries to remove so the sum of the remaining numbers in every row and column is the target. An alternative version uses individual target sums for each row and column.




♠ ♠

3 ♠

# Island Hopping by 1's and 10's

| | | | |
|---|---|---|---|
| 57 | 67 | 66 | 56 |
| 5 | 4 | 94 | 95 |

| | | |
|---|---|---|
| 33 | 23 | 13 |
| 32 | 22 | 12 |

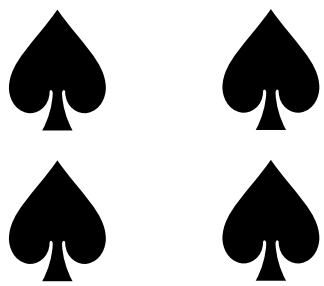
Start with a partially filled in grid. Fill in numbers so any 2 sharing a side differ in a single place, and that difference is 1 (including going between 0 and 9). No number may be repeated. In these examples, the red numbers are the missing ones.

♠ ♠ ♠

4

# War – Double-Digit Compare

Split a deck of cards, only 1's-9's, evenly between two players. Each player turns over two cards and puts them side by side to form a two-digit number. The player with the larger number keeps all 4 cards. If there is a tie, each player turns over 2 more cards, the winner getting all 8 cards. The player with the most cards wins.



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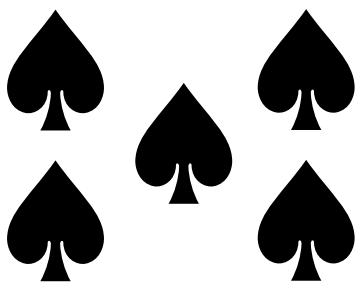
# Math Blackjack

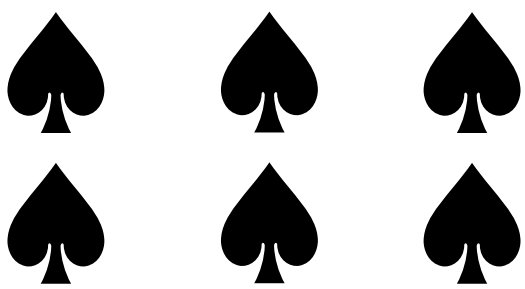
The target number is usually 21. Two cards are dealt to each player; one face up and one face down (only the receiving player sees their face down card). During a turn, a player may ask for more cards until they decide to stop. After all the turns, the player closest to the target without going over wins.



6 ♠

# Fill in the Blanks Comparison

Use cards with the numbers 1 to 9. Deal two cards to each player face down. Each player turns over one card and decides whether that card will be the tens or ones card. After deciding, each player's other card is turned over and fills the remaining place. The player with the larger number wins. You can also play that the smaller number wins.



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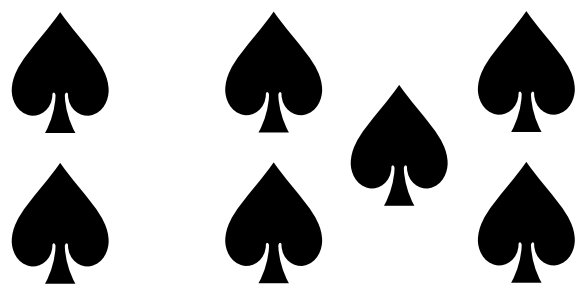
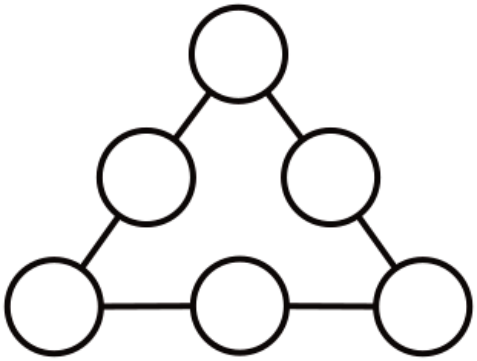
# Combine Three

Use a 3 by 5 array of squares numbered 1 to 15. Roll 3 dice and use adding and subtracting to match an unclaimed number on the board. The matched number is crossed out and claimed. If no match is found, the other player is allowed to use these numbers to claim a number. In either event, the turn ends. The most claimed numbers wins.



8 ♠

# Magic Triangles



The circles on each side of a ***Magic Triangle*** add up to the same thing.

**THE CHALLENGE:** Use 1 to 6 once each to make Magic Triangles. How many ways can you do it? Can you do a larger triangle with 1 to 9?

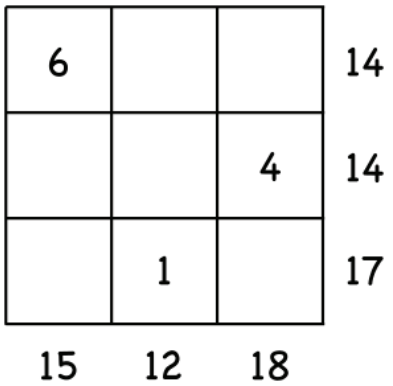
♠ ♠ ♠ ♠

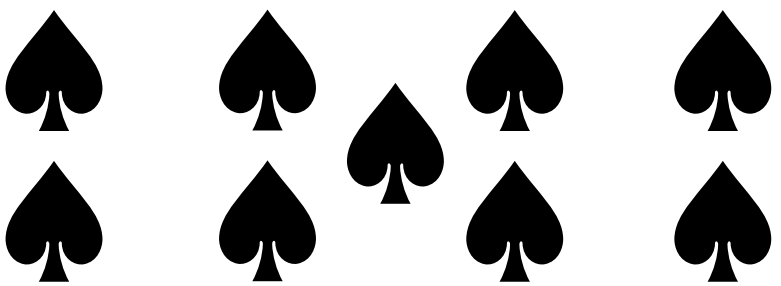
♠ ♠ ♠ ♠

9 ♠

# Sum Square

Start with a 3 by 3 grid that has target sums given for each row and column, with some of the numbers from 1 to 9 already placed. Place the missing numbers (indicated in red in this example) so the row and column sums are the target values.



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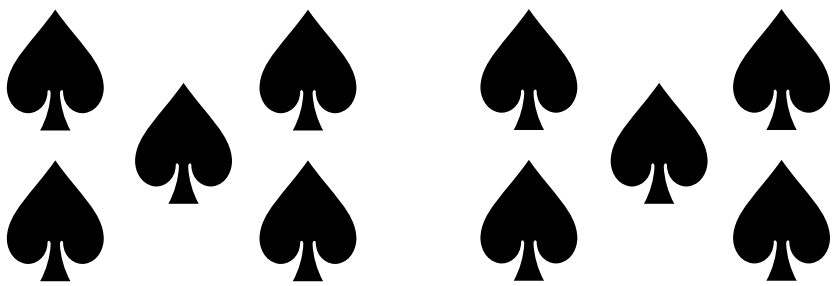
# Sum Difference

One person gives a sum and a difference, and the other person finds the two numbers that have that sum and difference.

**Example:** If one person says the sum is 12 and the difference is 6, the other person says the numbers are 3 and 9.



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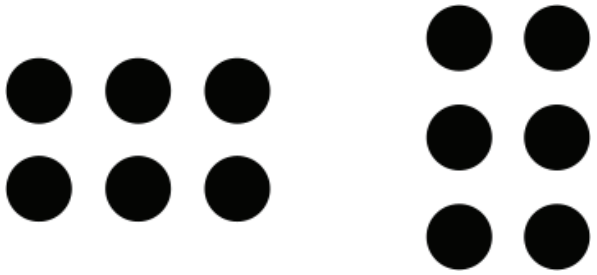
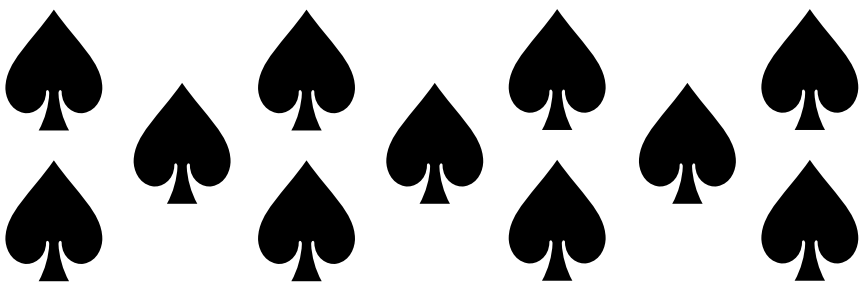
# Mental Times – First Two Steps

Steps for mental multiplying:

**Multiply by 2:** Doubling is natural after learning adding twins. If you know 4 + 4 = 8, then two 4's are 8!

**2 × 3 = 3 × 2:** Order does not matter! This cuts in half the number of facts to learn. 3 × 2 is just 2 × 3 on its side!





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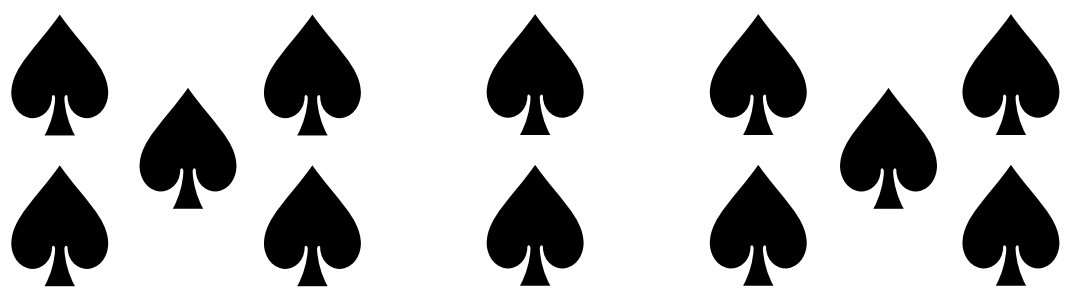
# Mental Times – Skipping

Skip counting practice helps with addition and subtraction. It also helps with multiplication.

**Example:** To find 7 × 3, either skip count by 3's seven times, or skip count by 7's three times.



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# Mental Times – 3's and 4's

The last step for multiplication facts up to 5 × 5 is learning the 3's and 4's, and that 5 × 5 = 25.

**Multiplying by 3** times is adding the number to double the number.

**Multiplying by 4** is doubling a number and then doubling that result again.

Joker

Joker

Joker

Joker