Various card games to practise addition and subtraction

Why use cards?

Cards are versatile and readily available. Children particularly like the fact that playing cards are used by gown-ups, for fun, and that their original purpose is unrelated to learning maths.

You can use ordinary playing cards for all the games provided, but look out for 'low vision' playing cards (for people with poor eyesight) for card faces that are less cluttered and that feature extra large numerals (as in the photo at the right). For some games, it is less distracting to play with digit cards which you can either buy or make yourself by printing off cards from the resources area of this website.

N.B. Make sure the children playing these games have already been taught how to partition and recombine small quantities without counting. The whole point of playing these numeracy games is to reinforce an awareness of numbers as being built of, or split into, component chunks, and not just a succession of ones. It is therefore, really important **NOT** to allow any counting in ones, on fingers or otherwise, while playing these games!

Note that 6 more games are listed separately under 'Subtraction Games'. *

Solitaire / Patience games:

- **Clear the Deck*** **/ Tens Away!**
- **Clock the 12s** *
- **Thirteens & Fifteens** *
- **Double Take** * *
- **Standing Aces** *
- **Fifteen in a Suit** *

Games for two or more players:

- **The 3-card shuffle**
- **What's the Difference [3 or 4] ?** *
- **Over the Top / Climbing Down**
- **A Close Call**
- **Pontoon** (a.k.a. **Blackjack** or **Vingt-et-Un**)
- **Zero Blackjack**

* *See demonstration videos of five of these games in my ebook 'Card Games for Addition & Subtraction'*
https://itunes.apple.com/gb/book/card-games-for-addition-subtraction/id1004509577?mt=11

* *See demonstration videos on YouTube*
https://www.youtube.com/channel/UCohFUmEat0UxOnNmRh92P_Q

Clear the Deck of . . . 6s (or 7s or 8s or 9s)

What is the game about?

This solitaire game, for one player, reinforces all the number bonds of a particular target number. The target can be any number between 6 and 9 inclusive. No counting in ones is allowed!

Equipment needed

A set of digit cards (or playing cards) made up of four cards for each of the numbers below the target. E.g. if the target is 6, use four cards each for the numbers 1 – 5; if the target number is 9, use four cards each for the numbers 1 – 8, etc.

Rules

Shuffle the pack. Lay out an array of cards face up, so that the number of cards on show is one less than the target number (e.g. set out five cards if the target number is 6). Play by clearing away any two cards that add up to the target number. Fill the two spaces with new cards from the pack and continue.

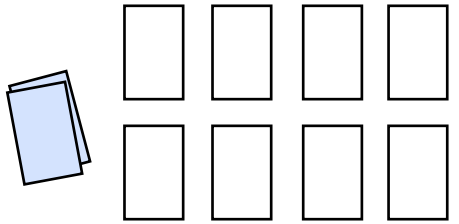
The game is won if all the cards are paired up and cleared away.

Talk aloud as the pairs are cleared, e.g. *"2 and 4 are 6"*, or *"1 plus 5 is 6"*.

The target number is 6. My next move would be to remove the 4 and a 2, then fill the empty spaces with new cards.

Clear the Deck of 9s

Below is an array for a target number of 9.



'Clear the Deck' appears in 'The Dyscalculia Toolkit' [Sage] and in 'The Dyscalculia Resource Book' [Sage]

A demonstration video is also included in the ebook 'Card Games for Addition & Subtraction' [Apple Books]

Tens Away!

What is the game about?

This game, for one player, is a version of the Clear the Deck solitaire game (above) designed to focus on the components – sometimes called 'number bonds' or 'complements' – of the number 10.

No counting in ones is allowed!

Equipment needed

A set of digit cards composed of four cards for 1 – 9, or a pack of playing cards from which the 10s and the picture cards have been removed (Aces count as 1).

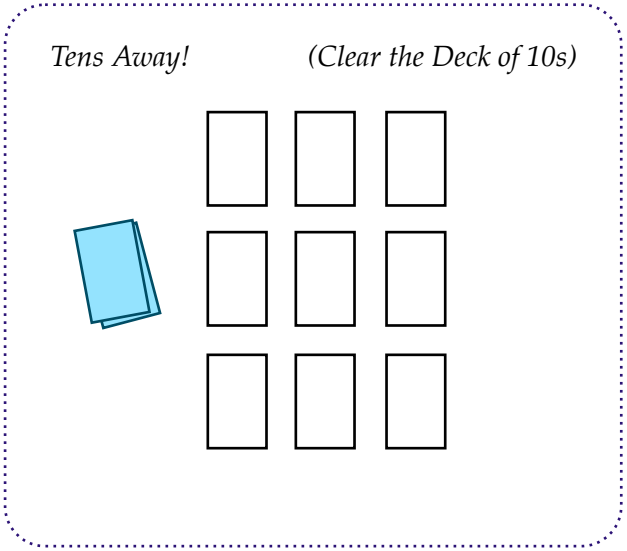
Rules

Shuffle the pack. Lay out 9 cards, face up.

Play by clearing away any two cards that add up to 10. Talk aloud as the pairs are cleared, e.g. *"2 plus 8 is 10"*, or *"Two 5s are 10"*.

Fill the two empty spaces with cards from the pack and continue.

The game is won if all the cards are paired up and cleared away.



'Tens Away!' appears in 'Overcoming Difficulties with Number' [Sage]

Clock the 12s

What is the game about?

This game, for one player, provides practice in the components of the number 12.

Equipment needed

A pack of playing cards, with all the Aces, Jacks, Queens and Kings removed, leaving a reduced pack of 36 cards.

Rules

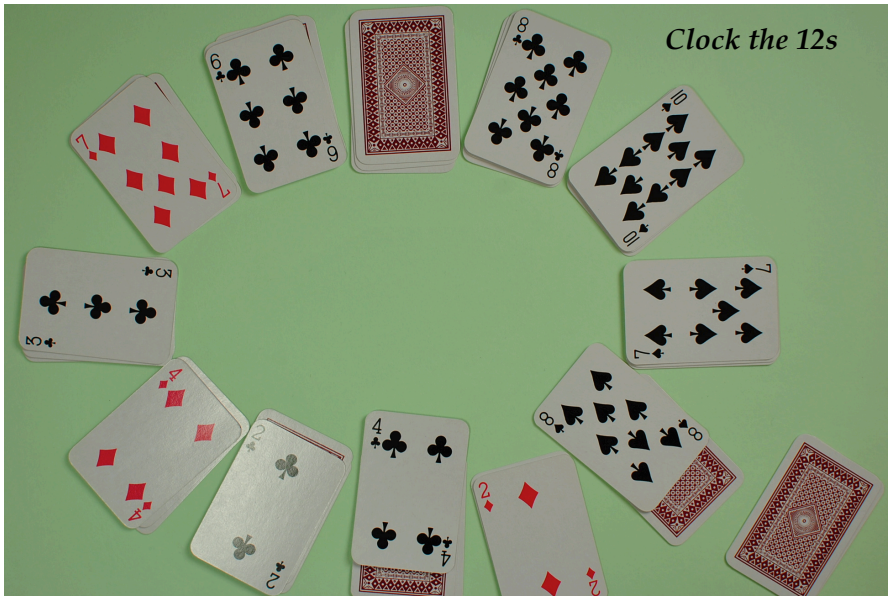
Shuffle the pack. Set out 12 cards face down in a circle, as in an analogue clock face. Deal out a second round of 12 cards on top, also face down. Begin the third layer by putting a card face down at the top (the 12 o'clock position) and the remaining 11 cards face up around the circle.

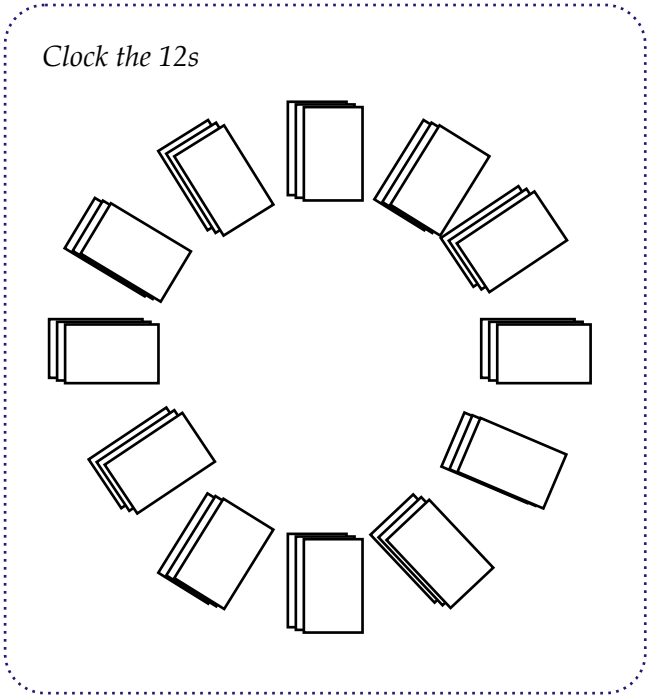
Play by clearing away any two cards, from the eleven visible cards, that add up to 12. Announce the components and the total aloud as each pairs of cards is cleared, e.g. *"7 plus 5 is 12"*.

After clearing a pair of cards, turn over the cards that lie underneath. When a space is created in the circle, i.e. when all three cards in one position have been used, fill the space with a card from the top of the circle (the 12 o'clock position) as long as they are available, and continue to play. The 3 cards at the top of the circle cannot be turned over in situ, but must be moved to an empty space before they can come into play.

The game is won if all the cards are paired up and cleared away.

A video demonstrating this game appears on Ronit Bird's YouTube channel.





Thirteens & Fifteens

What is the game about?

This solitaire game, for one player, provides practice in finding pairs of numbers that add up to 13 or 15. Be sure not to count in ones!

Equipment needed

A pack of playing cards. In this game, Jacks count as 11, Queens as 12, Kings as 13 and Aces as either 14 or 1.

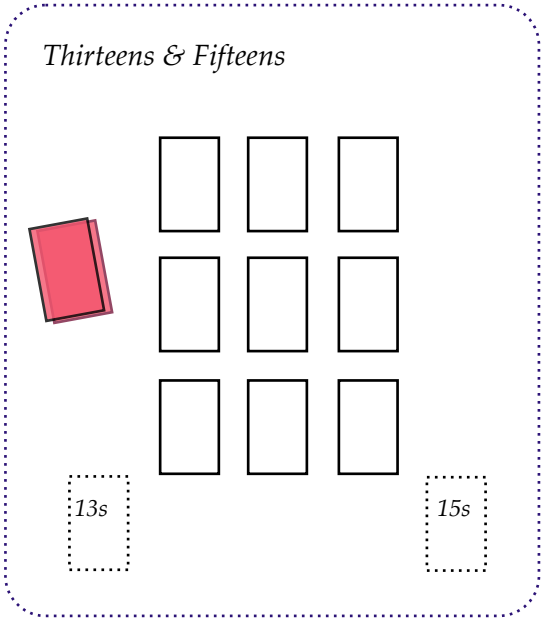
Rules

Shuffle the pack. Lay out the top 9 cards, face up. Remove from the array any two cards (but for a special rule about Kings, see below) whose face values add up to either of the target numbers, 13 or 15. Put the pairs of cards worth 13 in a winning pile at the left and the cards worth 15 in a winning pile at the right. As soon as cards are removed from the array, fill the spaces with new cards from the pack.

A King may be removed as a single card worth 13, or it can be paired with a 2 to make 15. Aces are paired with each other to make 15.

The game is won if no cards remain to be dealt out from the pack (you do not need to clear away the whole array to win this game) providing you have collected more cards in the 15 winning pile than in the 13 pile.

This game appears in Ronit Bird's 'Overcoming Difficulties with Number' [Sage] and (together with a demonstration video) in the ebook 'Card Games for Addition & Subtraction' [Apple Books]



Double Take

What is the game about?

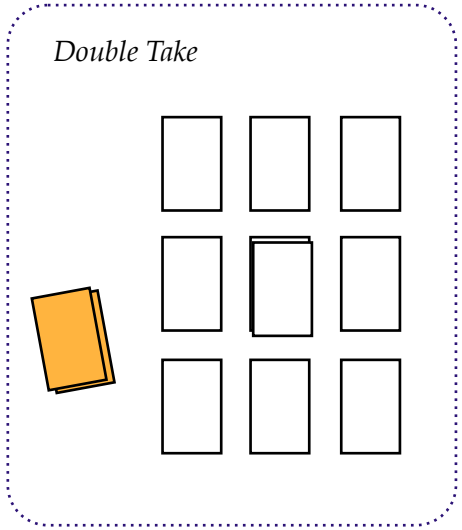
This solitaire game, for one player, provides practice in doubles and near-doubles facts, up to 10 + 10. Instead of any counting in ones, players must use a knowledge of doubling, together with logical reasoning. For example, once you identify 7 and 6 as near-doubles, you could calculate the total by thinking: "*Double 6 is 12, so 7 + 6 must be 1 more (i.e. 13)*" or "*Double 7 is 14, so 7 + 6 is 1 less (i.e. 13).*"

Equipment needed

A pack of 32 cards composed of 4 for each of the numbers 2 – 9 (or 36 cards for 2 – 10).

Rules

Shuffle the cards. Place one card face down in the centre and then set out 9 cards, face up, in a 3 by 3 array (position the middle card of the array on top of the face-down card). Clear away the cards in pairs according to the following rules: the two cards must be either doubles (i.e. two cards for the same number) or near-doubles (i.e. cards for consecutive numbers); also, both cards must lie in the same row or column. As you clear the cards, announce the total value of the pair aloud. As soon as cards are removed from the array, replace them with new cards from the pack. After all the cards in the pack have been used, you may turn over the face-down card as soon as it is exposed, to bring it into play.



The game is 'won' when the pack has all been dealt out, and is deemed a 'success' if all the cards are cleared. A remainder of 2 cards at the end can be considered a 'good' outcome. Make a note of how many cards remain at the end and try to beat your score next time; alternatively, keep a record of the total face value of the cards remaining at the end and try to beat that score next time.

This game (together with a demonstration video) appears in Ronit Bird's ebook 'Card Games for Addition & Subtraction' [Apple Books] and on Ronit Bird's YouTube channel.

Standing Aces

What is the game about?

This solitaire game, for one player, provides practice in adding (adding, not counting!) pairs of numbers, up to 10 + 11.

Equipment needed

A pack of playing cards from which the Kings and Queens have been removed. Jacks count as 11.

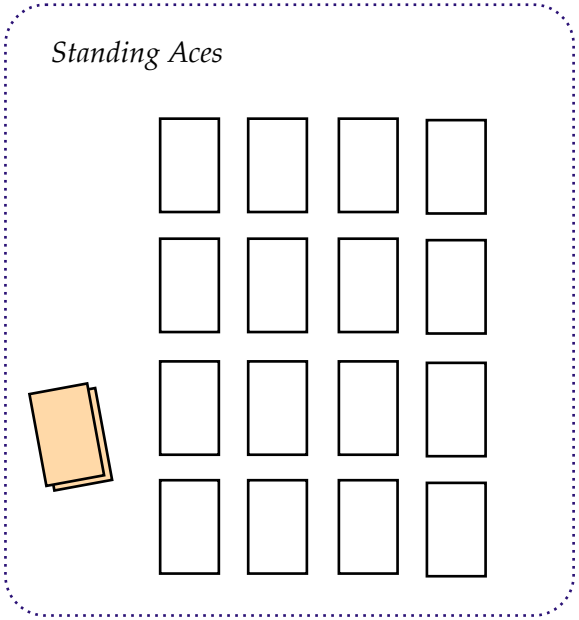
Rules

Shuffle the cards and set out 16 cards, face up, in a 4 by 4 array. Aces cannot be moved or used as part of any addition. Clear the other cards from the array in pairs, wherever two cards are of the same suit and can be removed from the same row or column. As you pick up the pair of cards, add the numbers mentally and announce the total aloud. As soon as cards are removed, fill the spaces with new cards from the pack.

The game is won when only the four Aces remain. This is difficult to achieve, so keep a record of how many cards remain and try to beat your score next time.

Variation

Instead of counting how many cards remain (apart from the Aces), find the total of their face values. This changes the focus, encouraging the player to attend to the larger numbers in order to minimise the penalties at the end.



This game (without the variation) appears in 'Overcoming Difficulties with Number' [Sage] and is included (with the variation, and a demonstration video) in the ebook 'Card Games for Addition & Subtraction' [Apple Books]

Fifteen in a Suit

What is the game about?

This solitaire game, for one player, provides practice in adding (adding, not counting!) any combination of numbers that add up to 15.

Equipment needed

A pack of playing cards from which the 10s have been removed. Aces count as 1s.

Rules

Shuffle the cards and set out 16 cards, face up. Clear any cards (not just pairs of cards, but any number of cards) that add up to 15, providing they are of the same suit that. As soon as cards are removed, fill the spaces with new cards from the pack.

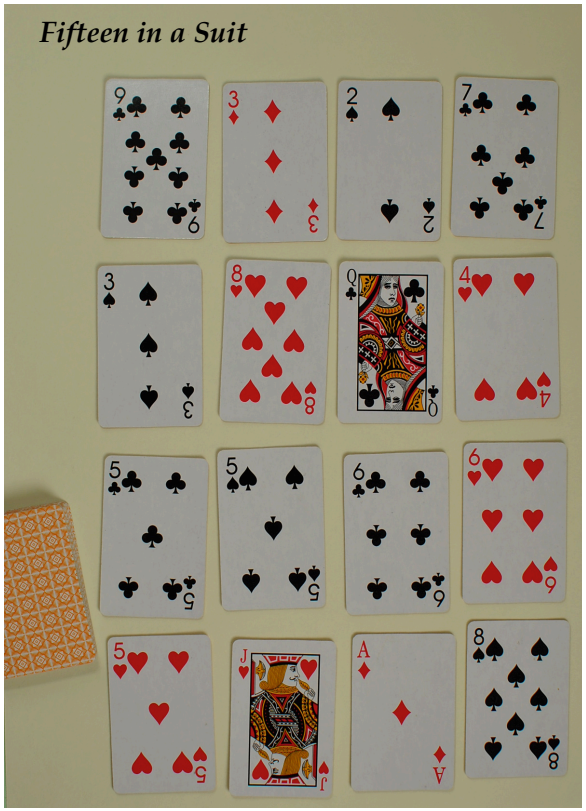
As soon as a Jack, Queen and King are all showing, you may remove all three, irrespective of their suits, and fill the empty spaces with new cards.

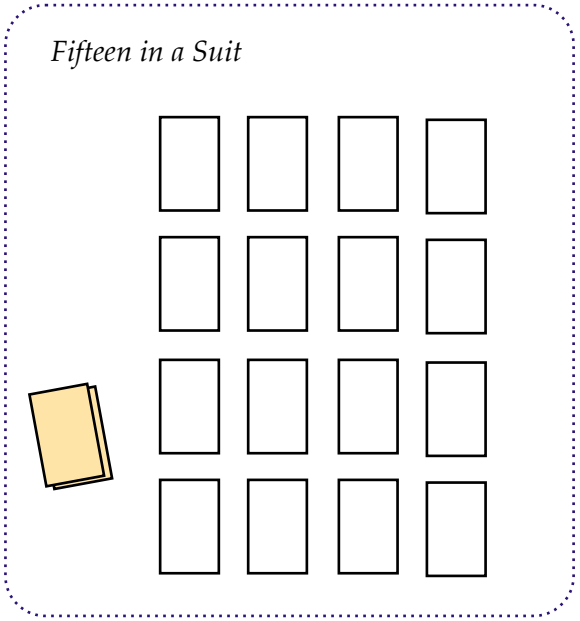
The game is won if you can deal all the cards in your pack and clear the card layout from the table.

Variation

A harder version is to remove the Jack, Queen and King only if they are of the same suit. An easier version of the game is to remove all the picture cards, together with the 10s, at the start.

This game appears in 'Overcoming Difficulties with Number' [Sage] and a demonstration video appears on Ronit Bird's YouTube channel.





The 3-Card Shuffle

What is the game about?

This game for 2 or 3 players provides practice in mental addition of 3 small numbers. Its focus is on choosing and rehearsing the best strategies for each situation. (Counting is never the best strategy!)

Equipment needed

A reduced pack of digit cards composed of 4 each of the digits 2 to 6 inclusive.

Rules

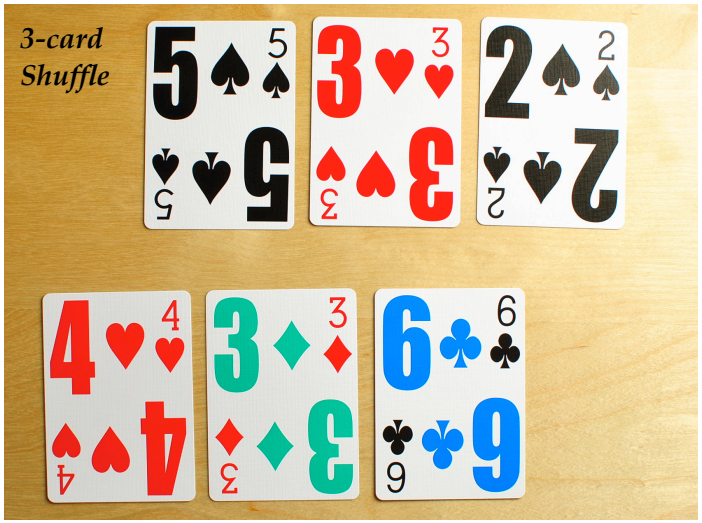
Players take turns to pick up 3 cards from the top of the shuffled pack, showing the faces to the other player(s). On your turn, rearrange your cards into whatever sequence you feel will make the calculation easier. You must announce the subtotal of two of the cards before finding and announcing the total of all three cards. No counting in ones is allowed!

For example, if you pick up a 5, a 3 and a 2, you could choose to combine the 2 and 3 first (2 + 3 is the key fact about 5) before adding 5 to 5 (this is also a key fact as well as a complement fact).

On each round, the player(s) with the highest total wins a token or a point. When the cards run out, shuffle them again and continue to play. The game ends after 5 rounds or as soon as there is a clear winner after 5 rounds.

Variation

For players who can mentally bridge through 10, play with a pack of cards created from the digits 4 – 9.



The 3-Card Shuffle

Player 1			*Player 2*		
5	3	2	4	3	6

Player 1 might choose to add the 2 and 3 first, leaving a simple addition: 5 + 5.

Player 2 might choose to combine the complements 4 and 6 first, because it is easier to add 10 + 3 than to calculate 7 + 6. Player 2 wins this round.

What's the Difference [3 or 4]?

What is the game about?

This game for 2 players provides practice in subtraction as 'difference' and focuses on pairs of numbers with a difference of exactly 3 or 4.

Equipment needed

A pack made of 4 digit cards (or playing cards) for each of the numbers 3 – 10.

Rules

Take out the 3s and the 4s and put them face up between the players. These eight cards are the winnable cards.

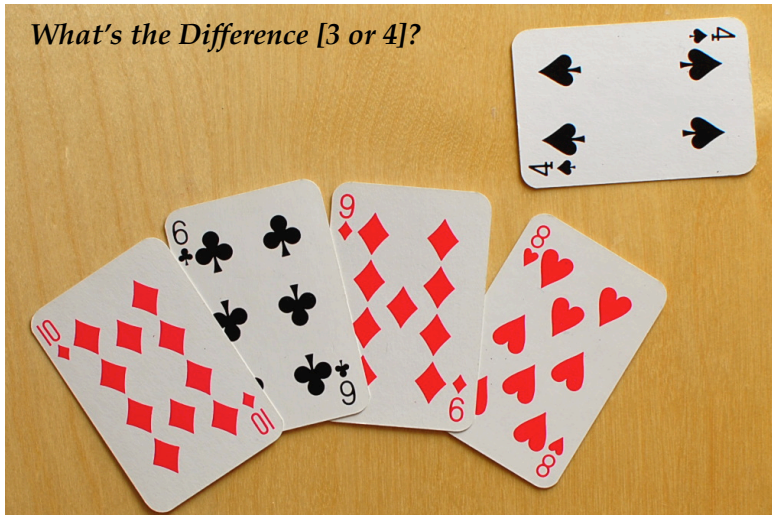
Shuffle the remaining 24 cards and deal 4 cards to each player. Players keep four cards in their hand, hidden from their opponent, throughout the game.

On your turn, play two cards from your hand with a difference of either 3 or 4 between the two numbers. Use this pair of cards to claim one of the winnable cards: a difference of 3 wins a 3; a difference of 4 wins a 4. Put all three cards into your winning pile. Take two new cards from the pack, ready for your next turn.

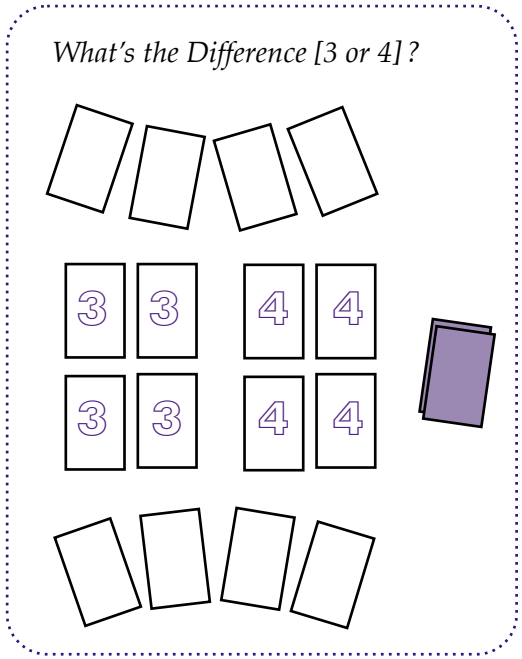
If, on your turn, you cannot create a difference that matches one of the winnable cards, proceed as follows: pick up a fifth card to add to your hand before removing any one of the five cards and placing it face down at the bottom of the pack. You may do nothing else on this turn.

The game ends when all eight 3s and 4s have been won (or when the pack has been gone through and any remaining 3s or 4s cannot be won).

This game (together with a demonstration video) appears in Ronit Bird's ebook 'Card Games for Addition & Subtraction' [Apple Books]



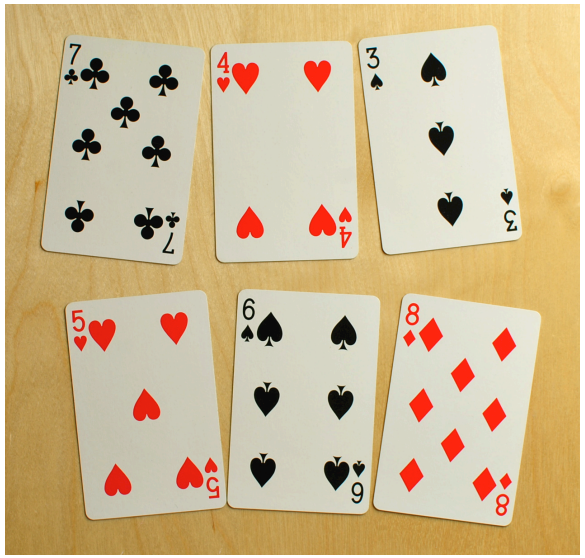
I can win the 4 by playing my 10 and 6 (10 – 6 = 4). If there were any 3s left, I could win one with the 6 and 9 (9 – 6 = 3).



Over the Top

What is the game about?

A game for 2 or 3 players that provides practice in adding single-digit numbers and in keeping a running total. Depending on the ability of the players the game target can be any number. I suggest a number between 15 and 30. (The photo is of a game in which the target was 30.)



Equipment needed

A pack of digit cards (or playing cards) with 4 cards each for the numbers 1 – 9 inclusive.

Rules

Decide on a target number, e.g. 15. As players become more confident and more practised, the target number can be increased (but I recommend a target of no more than 30).

The cards are shuffled and dealt into equal piles, face down, one pile for each player. Players take turns to place their top card face up on the table, reading the number aloud. Each player has to mentally add the number on his/her card to the other card(s) that are face up and announce the current running total. The player whose card takes the total **over the top**, i.e. reaches or goes beyond the chosen target number, wins the round and receives a token or a point.

Play 5 rounds.

Climbing Down

What is the game about?

A game for 2 or 3 players that provides practice in subtraction. It is played like 'Over the Top', but in reverse. Pick any number between 15 and 30 to start the game. (The photo could be of a game in which the starting number was 30.)

Equipment needed

A pack of digit cards (or playing cards) with 4 cards each for the numbers 1 – 9 inclusive.

Rules

Decide on a starting number, between 15 and 30, and write it down somewhere in full view of all the players.

The cards are shuffled and dealt into equal piles, face down, one pile for each player. The first player places his top card face up on the table, reading the number aloud and mentally subtracting it from the chosen starting number. Taking turns, the subsequent players must reveal their top card and mentally subtract the number on it from the amount announced by the previous player. The player who takes the tally **below zero**, wins a point for that round.

Play 5 rounds.

A Close Call

What is the game about?

This game for 2 or 3 players is based on place-value and provides practice in mental addition of 2-digit numbers. Variation 3 can also involve subtraction from 100.

Equipment needed

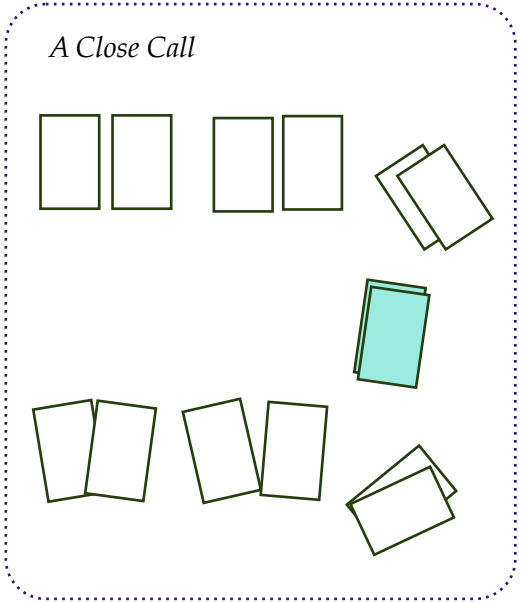
A pack made of 4 digit cards for each of the numbers 0 – 9 or a pack of playing cards without the court cards or 10s leaving 4 cards each for the numbers 1 to 9 inclusive.

Rules

Shuffle the whole pack of cards before each round. Each player gets six cards, face up.

Players choose any four of their six cards to arrange as two 2-digit numbers (e.g. a 5 and a 6 could be arranged as 56 or as 65). Players need to create two 2-digit numbers with a total that is as close to 100 as possible. The player who gets closest to 100 wins a point for that round. Play 5 rounds to determine the winner.

The hand above shows a total of 101, made out of 65 + 36. In Variation 1, this player would be bust (and therefore should choose to play 63 + 36 instead).



Variation 1

A simpler version of the game is to aim as close to 100 as possible, as above, but to consider a total of more than 100 as 'bust' which would mean no possibility of winning that round of the game.

Variation 2

A slightly harder version of the game is treat one digit, in each pair of cards, as a whole number and the other as a tenth (i.e. as the number in the first decimal place) and aim as close to a total of 10 as possible.

Variation 3

At the end of every round of the basic game, each player records the difference between 100 and the total of the two numbers they created. E.g. a player who makes 101 would record 1 penalty point; a player with 85 would record 15 points. The subtraction should be performed on an empty number line (real or imagined), not as a column subtraction. The player with the fewest points after 4 rounds wins the game.

Pontoon

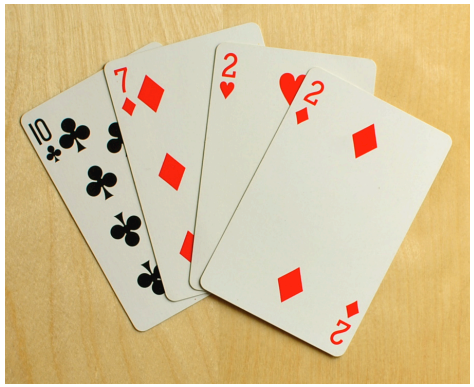
What is the game about?

This popular casino game, also known as Blackjack or Vingt-et-Un, practises adding numbers up to a total of 21. It is a game for three or more players, including one who is the dealer.

Equipment needed

A pack of playing cards. Each number card scores its face value. Aces can score either 1 or 11. Picture cards score 10.

Rules



The dealer goes round the players in turn. They must each say whether they would like another card, in which case they say "hit me", or not, in which case they say "stick". A player whose cards total more than 21 says "bust", lays the hand face up on the table and is out of the game. A player may ask for a fourth card on the next round, and a fifth or more on subsequent rounds, until all the players have either gone bust or decided to stick.
The dealer now turns over his own cards and goes through the same process of "hit me" or "stick" for himself, with all the other players looking on.

If the dealer goes bust, all the players who are still in the game win a point. If the dealer sticks at 21 or less, whoever is closer to 21 wins a point. In the event of a draw, more than one player can win a point.

Zero Blackjack

What is the game about?

This game is derived from Pontoon and most of the same rules apply. It practises both addition and subtraction of small amounts, with a target number of zero. It is a game for three or more players, including one who is the dealer.

Equipment needed

A pack of playing cards from which all the picture cards have been removed. Aces score 1 or 11.

Rules

All the same rules apply as for Pontoon (see left) except that players are aiming for a target of zero (instead of 21) and players are limited to a maximum of five cards each.

In this game all the black cards are regarded as positive and all the red cards are regarded as negative.

Any player to achieve zero wins a point for that round. If no player achieves the target, the point goes to the player (or more than one player if there is a draw) whose total is closest to zero. Closeness to 0 applies to both positive and negative numbers: a player who "sticks" at, say, –2 would draw with a player who "sticks" at 2 and would beat a player who "sticks" at 3 or more.

These games appear in 'Overcoming Difficulties with Number' [Sage]