

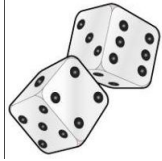


Year 3

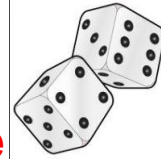
Supporting **Addition** and **Subtraction** at Home

Examples of Card and Dice Games you can play at home with your child.

Mathematical Vocabulary	
Addition	Subtraction
	
add	minus
addition	take away
sum of	take
plus	difference between
altogether	subtract
increase by	less than
extra	less
more than	take from
more	decrease
count on	
plus	



Dice Games you can play at home



Not a 1! Mental Addition and Critical Thinking

The goal of Pig is to be the first player to get to 100. The game is played with a pair of dice, and requires a paper and pencil for scoring.

1. The first player rolls the dice, calculates the sum (mentally), then rolls again if he or she wants to. The next sum is added to the first. The player can roll as often as s/he wants to before play goes to the next turn. However...
2. If a 1 comes up on one of the dice before the player decides to stop rolling, the player scores 0 for that round. The play goes to the next player.
3. Worse still, if a 1 comes up on both of the dice, the turn ends and the player's entire total falls to 0.

DICE GAMES - QUICK IDEAS

KNOCK OFF NUMBERS

You need: 1 dice, paper & pencil

- 1 learner throws 1 dice, other writes the number that is thrown.
- Do this 10 times in total.
- Learners' work together to add the numbers as quickly as possible using their own strategies.



BONDS TO 20

- Throw 1 dice many times. Keep adding each time to get to **EXACTLY** 20. If your score adds to more than 20 you are bust! Start again.

VARIATIONS:

- Add to 30, 50 or 100.



MENTAL MATHS

Skills: Relationship between addition and subtraction

- Each learner gets a dice
- Roll the dice and keep the number in their head
- Using that number, give them something to work out e.g. +10 to the number, add 10 more to the answer, + 100 to the answer. What's your answer now?
- Can they work out what another learner's original number was by working backwards e.g. Answer -100, less 10, -10?



HOW MANY TO 20

- Throw two dice
- Add the numbers together
- Say how many more you need to make 20

e.g.  +  answer 15

VARIATIONS:

You can use more dice and say how many to add to 25; 30; 50 or 100



BEAT THAT!

Skills: Place value, 2 digit addition & estimation

You need: 2 dice, scrap paper, work in pairs

- Roll the dice. Make the biggest 2 digit number possible.
For example: if you roll a 4 and a 6, your biggest number would be 64
- Write down your number under your name on paper
- Pass the dice, and challenge your partner to "Beat That!"
- Have 3 turns each
- ESTIMATE who you think will have the biggest score
- Then add up your numbers and your partner's numbers
- Check and compare your answers
- Was your estimate correct?

VARIATION: Try making the smallest number possible!

Nice or Nasty

Find a partner and a dice,

Each of you draw a set of four boxes like this:



Game

Take turns to roll the dice and decide which of your four boxes to fill. Do this four times each until all your boxes are full. Read the four digits as a whole number.

Whoever has the larger four-digit number wins a point.

Work out the difference between the two four-digit numbers after each round.

Challenge your partner. Place your finger under a cell and ask them the value of the digit.

Is the number odd or even? Which digit do you need to look at to decide?

Now for variations!

Whoever makes the smaller four digit number wins. You'll probably want to change the scoring system.

Set a target to aim for. Then throw the dice four times each and work out how far each of you is from the target number. Whoever is the closer wins.

Play the same game with 5, 6 or 7 digit numbers – how many hundred thousands, tens of thousands, a thousands, hundreds, tens and units?

This is the nasty version!

Play any of the games above. This time you can choose to keep your number and put it in one of your cells, **OR** give it to your partner and tell them which cell to put it in. You might lose a friend this way! It's really important to take turns to start each round if this game is going to be fair.



Card Games you can play at home

OTHER PLAYING CARD GAMES

ADD 5 CARDS

Skill: 1 & 2 digit addition and addition strategies

- Work in pairs using *Think, Pair, Share* (see insert box below)
- King = 13, Queen = 12, Jack = 11, Ace = 1
- Deal out 5 cards **face up** as shown
- Both learners add up the values of the cards
- Check each other's totals and discuss the strategies used to add



VARIATIONS: use less cards for younger learners or take out picture cards

Adapted from: <http://www.math-drills.com/addition.shtml#Games>

THINK, PAIR, SHARE

Work through the problem on your own, then, explain your thinking to your partner

Don't forget to: Listen to each other & ask questions

14. First to 50 - Find the Difference

5+ years

2- 5 players

Practice subtraction facts.

Instructions

First to 50 - Find the Difference

2 - 5 players

Getting Ready

Shuffle cards and place face down in a pile in the center of the players.

Play the Game

Each player draws two cards from the center pile. (Or someone can deal two cards to each player.)

Players find the difference between the two values on the cards, e.g. the difference between 8 and 3 is 5.

The player with the highest answer keeps their cards.

The others return their cards to the pile which is shuffled and placed in the center.

Repeat. Each player keeps adding the value of the cards they have won until one player reaches 50 and becomes the winner.

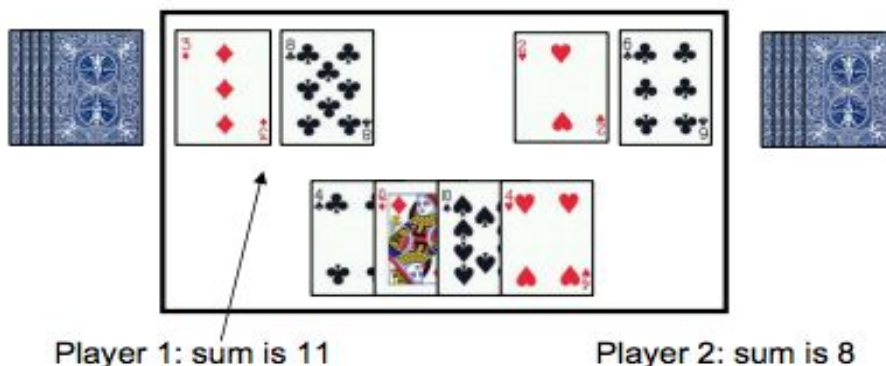
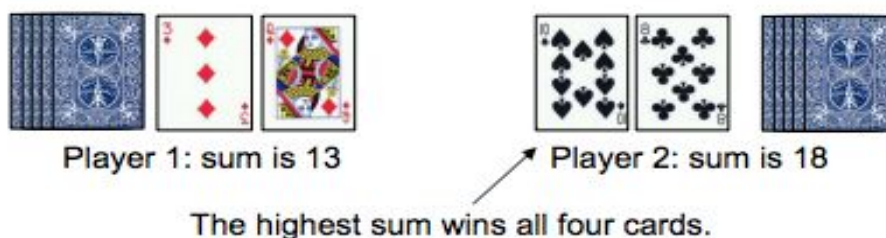
Addition Number Battle (Grades 1 - 3)

Players: Groups of two

Materials: Deck of cards, face cards worth ten, Ace worth 1 or 11 (teacher decides)

Skill: Number recognition and addition

How to Play: Players split a deck of cards and simultaneously flip over their top two cards.



If the cards sums have the same value, the cards are placed in a center pile. The next hand is played normally and the winner of the next addition number battle takes the center pile as well.

6. Make 25 With 5

6+ years

2 - 4 players

Practice addition.

Instructions

Make 25 With 5

2 - 4 players

Getting Ready

Each player is dealt 5 cards to hold in their hand.
The remaining cards are placed face down in a pile in the center.
The top card is turned over and placed beside the pile.

Play the Game

The aim of each round is to create a hand of 5 cards that add to 25.
Players take it in turn to pick up the top card of the pile or the top card of the discard pile. Each player finishes their turn by discarding a card onto the top of the discard pile.

The first player to have a set of 5 cards that total 25 calls out, 'Twenty-five' and is the winner of that round.

Keep score of how many rounds each player wins.

The winner is the player who wins the most rounds.

SUBTRACTION NUMBER BATTLE

Skill: Number recognition and subtraction

Players: pairs

You need: 1 Deck of cards, face cards = ten, Ace = 1

- Players split a deck of cards
- At the same time, each player flips over their top **two** cards and subtract the smaller number from the larger number.
- **EXAMPLE:**



- Player 1: Difference is 0



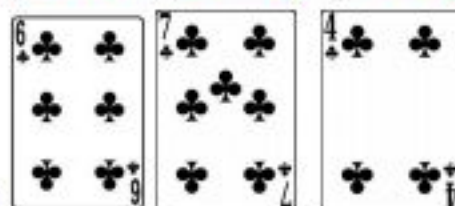
- Player 2: Difference is 7
- Player 2 wins all four cards
- If the card differences have the same value, the cards are placed in a centre pile. The next round is played normally and the winner of the next subtraction number battle takes the centre pile as well.

VARIATION: place value and subtraction

- Remove the 10s, face cards and jokers from the pack
- Players split a deck of cards and simultaneously flip over their top three cards.
- Make two of them into a 2 digit number and subtract the third. Players may move the cards to place them in any position they wish.
- **EXAMPLE:**



- Player 1: $98 - 3 = 95$



- Player 2: $67 - 4 = 63$

11. First to 50 - Odd Addition

5+ years

2- 5 players

Practice addition facts and recognition of odd and even numbers.

Instructions

First to 50 - Odd Addition 2 - 5 players

Getting Ready

Shuffle cards and place face down in a pile in the center of the players.

Play the Game

Each player draws two cards from the center pile. (Or someone can deal two cards to each player.)

Players add the two values together and tell everyone the total.

If the total is an odd number the player keeps their cards e.g. $4+5=9$.

If the total is an even number, e.g. $5+3=8$, the cards must be returned to the pile which is shuffled and placed in the center.

Each player keeps adding the value of the cards they have won until one player reaches 50 and becomes the winner.

Ten-Twenty-Thirty

Try this single-player addition game! All you need is a deck of playing cards to get started. Try to find sums of 10, 20, or 30 in order to clear cards. Practice your adding, and double check your work. If you can clear all of the cards, you'll win! "Ten-Twenty-Thirty" is a great way to have fun while practicing simple addition facts. After you've mastered the directions, check out the variations for new ways to play.

8. Closest To ...

6+ years

2 - 4 players

Practice number concepts and comparing values.

Instructions

2 - 4 players

Closest To ...

Getting Ready
Use only cards with 1-9 for this game.
Select the number of digits to be in the numbers for this game, e.g. 2 digit numbers, 3 digit numbers, 4 or 5 digit numbers.
Each player is dealt that number of cards.

Play the Game
The aim of the game is to make a number as close as possible to 50 if making 2 digit numbers (or to 500 for 3 digit numbers, 5000 for 4 digit numbers or 50,000 for 5 digit numbers.)
The players arrange their cards to make a number as close as possible to 50 (or 500, 5000, or 50,000).
The player with the closest number wins the round and scores one point.
The winner is the player who scores the most points.

Make My Number



Purpose

- Select appropriate operations to reach a target number.
- Use the **order of operations** when calculating.
- Use appropriate mental strategies for the four operations.

Materials

- Deck of playing cards.
Note: The picture cards all have a value of ten.
- Ace = one or eleven.

Aim

To make a target number using three numbers and different operations.

Organisation

A game for pairs or small groups.

Rules

- The dealer chooses a two-digit target number and deals three cards to each player. The player to the left of the dealer tries to make the target number using his/her three cards and any of the four mathematical operations (addition, subtraction, multiplication or division). If the player cannot make the number, one card is discarded from the hand and another one drawn. Play continues in a clockwise direction.
- The winner is the player who is able to make the target number with his/her three cards.

Variations

- The size of the target number and/or the operations used can be altered depending on the age of the players.
- Deal out more than three cards.
This game provides an ideal context in which to discuss "rule of order".



Sample game: Target number 32

Player 1	J 3 4	$10 \times 3 + 4$	= 34
Player 2	9 8 4	$9 \times 4 - 8$	= 28
Player 3	Q 8 4	$10 \times 4 - 8$	= 32 (Win)

Students could be asked to record the number sentences created for each target number.

Teacher notes

When completing a calculation that involves several different operations the convention is to follow a particular order:

Brackets, Indices,
Multiplication and Division (in the order they appear),
Addition and Subtraction (in the order in which they appear).

The acronym BIMDAS may assist students to remember the order of operations.

HiLo



Purpose

- Recall basic multiplication facts.
- Use known multiplication facts to work out unknown table facts.
- Mentally keep a running total.
- Compare whole numbers.

Materials

- Deck of cards (picture cards removed).

Aim

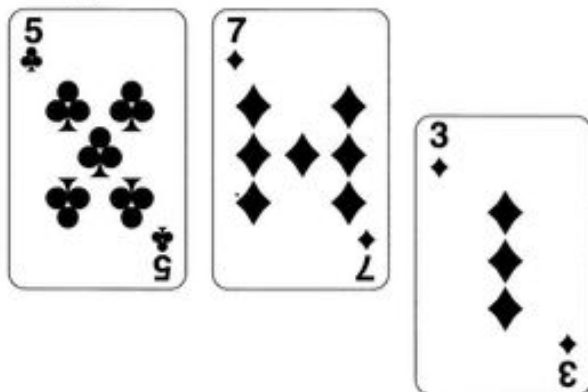
To achieve the highest score.

Organisation

A game for a small group.

Rules

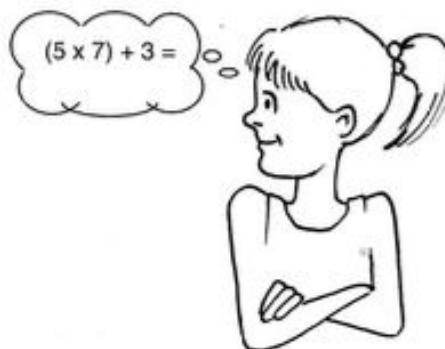
- One player deals out two cards face down and one card face up to each player. (The face up card is the addition card.)
- The dealer then states either **High** or **Low** and turns over his/her cards. These cards are multiplied and the number on the third card is added to the product.
e.g.



- The other players now turn over their cards and work out their totals. If a player scores less than the dealer, when the call is **Low** then he/she earns a point. If the call was **High** and the player scored less than the dealer then he/she does not score.
- The winner is the player with the highest score after ten rounds.

Variation

- Remove some of the higher value cards (eg. 7, 8, 9) to make the game simpler.



Sources:

www.makingmathsmorefun.com

Nrich website: nrich.maths.org

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Capers by Paul Swann

Card