

Introduction

There is a wide range of maths games that Number Partners can play.

Here are a few games to get you started. They are enjoyable and do not require much preparation. A number grid and number cards have been included for you to photocopy and cut out if necessary.

All the instructions, number of players needed and some tips are included.

Have fun!

Acknowledgements

Assisting Numeracy – A Handbook For Classroom Assistants By Ruth Aplin

Calculations In Their Hands By Fran Mosley

Cards On The Table By Fran Mosley

Casting The Dice By Fran Mosley

Numbers In Your Head By John Spooner

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1 Ordering numbers

NUMBER JIGSAW

For 2 pupils only

Resources

Number line or a 100-grid, cut up into five or six pieces

Activity

The pupils jumble the pieces up, then piece them together to reconstruct the number line or square.

The maths

Ordering numbers

NUMBER TRICKS

For 3 pupils only

Resources

Number cards 0 to 100 (the pack need not be complete)

Activity

1. Shuffle the cards and deal six to each player. Each player looks at their cards.
2. The first person chooses one of their cards, puts it in the middle of the table, and says the number.
3. The other players in turn choose a card, put it on the table, and say the number as well.
4. Whoever puts down the highest number wins the "trick".
5. Continue until all the cards are played.

Variations

Use cards 0 to 20 or 0 to 50. Look at your cards and decide how many tricks you might win. Write down your guess and see if you are right.

The maths

Understanding of 'higher' and 'lower' when applied to numbers



2 Addition and subtraction

GIVE AWAY

Resources

An ordinary die

Three or four saucers or tubs, each containing ten counters (or buttons, or shells)

Activity

1. Pupils take turns to roll the die, say the number, and give that number of counters to the player on their right.
2. If they don't have enough counters to do this, they have to miss a go.
3. The person on the left takes the next turn.
4. The winner is the first one to get rid of all their counters.

The maths

- Counting to 10
- Simple subtraction

Adapting the activity for different ages

For younger children, use a die marked '1, 1, 2, 2, 3, 3' and five counters. For older children, use two dice and add the numbers together – you will need 20 counters each.

Questions to ask

- What number did you get?
- If you give three counters to Sasha, how many will you have left?
- How many counters have you got now? Can you count them?
- If Joe gives you five counters, how many will you have? And how many will Joe have left?

Things to notice

Can the pupils:

- Recognise the patterns of dots on the dice without having to count?
- Give the correct number of counters?
- Check that they are being given the correct number of counters?
- Count accurately?
- Count how many counters they have after each go?
- Tell their left from their right?
- Remember their number bonds – or are they using their fingers to help them?



3 Addition and subtraction

Snake Pit

For 1 to 3 pupils

Resources

Pencil and paper

Two dice

Activity

1. Players begin with a score of 0. The aim is to add numbers together to reach 50 without falling in the Snake Pit.
2. These numbers represent the Snake Pit: 10 20 30 40
3. If a pupil scores a total of one of these numbers at any point in the game they fall in the Snake Pit and lose a point.
4. The players take it in turns to roll two dice and choose one of the numbers and add it to their current score.
5. If they land in the Snake Pit they lose a point. If they manage to avoid it, they gain a point.
6. They then pass the dice on to the next player.
7. The game ends when anyone reaches 50 or goes past it. Pupils keep a written record of their score as they go along.

The maths

- Mental addition
- Making numbers up to ten and tens numbers
- Making mathematical choices

Adapting the activity for different ages

For younger children, use two dice, both marked '1, 1, 2, 2, 3, 3' and aim for 20. The Snake Pit contains the numbers 5, 10, 15 and 20.

For older children, start with 100 and aim to reach 0. Roll three dice and choose two of the numbers to add together, then subtract the result from the running total. The Snake Pit contains the numbers 10, 20, 30, 40, 50, 60, 70, 80 and 90.

Questions to ask

- Which of the numbers are you going to choose to add? Why are you picking that one?
- What will you get if you add that number to your current score?
- What number do you need to reach 50?

Things to notice

Can the pupils:

- Work out what will happen if they choose this or that number, then choose a sensible number to add so as to avoid landing in the Snake Pit?
- Add the numbers mentally?
- Use their fingers to help?



4 Addition and subtraction

NUMBER SQUARES

For 2 or more pupils

Resources

A set of number cards 0 to 20 for each child

Activity

1. Each pupil chooses nine of their cards and arranges them in a 3x3 square.
2. They then find the total for each column and row. Ask them to rearrange the cards and find the totals again. How many different answers can they make?

The maths

Mental addition

TAKE IT

For 2 to 3 pupils

Resources

Two ordinary dice

Number cards 2 to 12

Activity

1. The pupils lay out the cards in order, face up.
2. They take turns to roll the two dice and add the numbers together.
3. They take that number card (if it hasn't been taken already).
4. The player who collects the most cards is the winner.

The maths

- Mental addition
- Number recognition

Variation

- Use cards 0 to 12, and let children add or subtract the two numbers, or use two ten-sided dice and number cards up to 20.

NUMBERS ON A GRID

For 2 to 3 pupils

Resources

A blank 3x3 grid (pupils can draw their own)

Activity

1. Ask players to write the numbers 1 to 9 in any order on the grid so it is full.
2. Add each line of three – all the lines on the grid have different totals.
3. Try different ways of doing it.

The maths

Mental addition



5 Number bonds

DEALER AND CALLER

For 3 pupils only

Number cards 0 to 10

Resources

Activity

1. The challenge is to make 10.
2. Choose who will be the 'Dealer'. The other two players are 'Callers'.
3. The Dealer shuffles the cards and puts them in a pile, then picks the top card and puts it face up on the table between the two Callers.
4. The Callers say the number which will give 10, when added to the number on the card.
5. The Dealer gives the card to whoever gives the correct answer first.
6. The next card can only be turned over when the correct number has been called (if necessary, the Callers must try another answer).
7. Continue until the cards are all used up.
8. At the end of the game the callers add up the numbers on their cards. The person with the highest total is the winner.

The maths

Recognising number bonds to 10.

Variations

- Make 12 or 15 or any number up to 20.
- Make 50 using 0 to 50 cards (for older children).
- Dealer, pick one card from a set showing 1, 2, 3...9 and another card from a set showing 0.1, 0.2, 0.3, and so on. Callers, add the two numbers and call out the third number which must be added to make 10.

MAKE 20

For 2 pupils only

Resources

Two sets of number cards 0 to 10, shuffled

Activity

1. Divide the cards between the two players.
2. The aim is to make as many rows of cards as possible that add up to 20.
3. There is a score of five points for every row of 20.

The maths

Using number bonds to 20

Variation

Pupils can make agreed 'swaps' with each other.



6 Number bonds

DRAGON

Resources

Cards 1 to 10

Activity

1. Shuffle the cards and share them all out.
2. Do not let anyone else see your numbers.
3. The player with the fewest cards starts.
4. The starter player picks a card at random from the person on their right. If they have then got a pair of cards that adds up to 10, it goes on the table, face up. That player then holds up the rest of their cards to the person on their left.
5. That person picks a card at random from the starter person. If they have a pair of cards that add up to 10, they put them down on the table.
6. Continue to take turns. At the end of the game there is only one card left. The person with that card is the dragon.

The maths

Knowing number bonds to 10

Variations

- With cards 1–20, put down pairs that add up to 20. What do you think the dragon card will be in this game? Why do you think that?
- Dragon Difference. In Dragon Difference you do not add up numbers. Instead, you want pairs with a difference of 5. (e.g. $7 - 2$, $6 - 1$).



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Odd and even

COLLECTING

For 2 pupils only

Resources

Two dice

Paper and pencil

Activity

1. Decide which player is the 'Odd' person and which is the 'Even' player.
2. Each person rolls one die and adds the two numbers together.
3. Decide whether the answer is odd or even.
4. If it is odd that number belongs to the Odd player, if it is even it belongs to the Even player.
5. The number is the score for that round. Only one person scores.
6. Keep running totals of your scores.
7. Continue playing until one of you has a score of 50.

The maths

- Recognising odd and even numbers
- Mental addition

Variations

Start with a score of 100 and subtract until you reach 0.



8 Manipulating numbers

FOUR IN A LINE

For 1 to 2 pupils

Resources

A 100-grid
 Four 1-6 dice
 Counters
 Calculators or a tables chart
 Pencil and paper

Activity

1. This is a game for one pupil or two pupils working together. A larger group can be split up into pairs, each pair working on the activity together.
2. The pupils toss all four dice, then make sums by adding and multiplying the dice numbers in any way they choose.
3. They then cover the numbers they come up with on the hundred grid.
4. The aim is to cover four numbers in a line.

The maths

- Mental addition
- Mental multiplication
- Recall of multiplication facts

Adapting the activity for different ages

For younger children, use two dice or number cards 1–10.
 For older children, use dice with bigger numbers and include subtraction and division.

Questions to ask

- What different numbers could you make with those dice numbers?
- Are there any others you could make? How do you know?

Things to notice

Can the pupils:

- Recall multiplication facts up to 5x5 instantly?
- Recall multiplication facts up to 10x10 instantly?
- Work out multiplication up to 5x5 mentally?
- Work out multiplication up to 10x10 mentally?



9 Manipulating numbers

SECRET NUMBER

For 2 or more children

Resources

Pencils and paper

Activity

1. One pupil is the 'Thinker'. The Thinker chooses a number between 1 and 100 in secret and writes it on a piece of paper, which is hidden away until the end of the game.
2. The other players, the 'Guessers', take turns to ask questions about the number. The Thinker can only respond 'yes' or 'no'.
3. The aim of the Guessers is to find out the number by asking as few questions as possible. They can keep track of how many questions they ask, and see if they can find the secret number with fewer questions next time.

The maths

Understanding the sense of a size of a number

Variation

- Use numbers to 1000.
- Use fractions or decimals.
- Use negative numbers.
- Use stricter rules for older pupils.
- Use more mathematical terms.
- Make it difficult by asking them to only use a few words.

Things to notice

Can the pupils:

- Ask questions without using too many incorrect terms?
- Notice a pattern in the questions they ask and the response they get?



10

Number cards

1

2

3

4

5

6

7

8

9

0



11

100 square

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