



Maths Games and Activities

This booklet contains ideas for games and activities that can be adapted quickly and easily to provide ways to support your child in their mathematical learning. The activities are such that you can play them again and again to increase 'number fitness'.

Blank Grids

Using a blank grid can be a really simple way of creating games to sharpen up number skills without the need for loads of mathematical equipment or having to make time-consuming resources.

Draw a simple grid, the more squares you have the more complicated the game will be (or it might take a lot longer to complete!). For example:

8	21	20
1	15	9
13	2	3

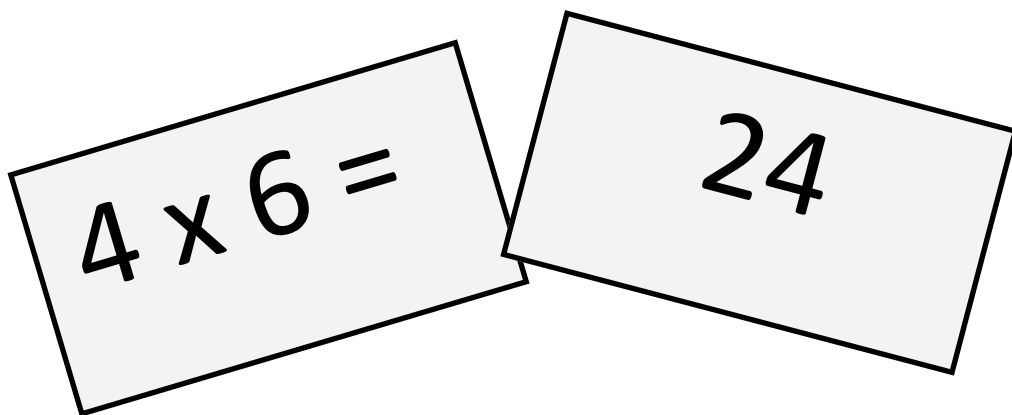
Write a number in each square, as above. There are now several games you could play:

- On pieces of card, write calculations that give the above numbers as answers. Shuffle them and take turns to draw a card and match it to the answer; keep the card if you do so. You could add in extra cards which don't match to make it trickier.
- If you have three players, have one person calling out questions. The other two have to work out and 'splat' the answer first. This works best if you cut out the squares of the grid!
- Play bingo. Each player needs to make their own board (it is best to limit the range of the numbers). One person calls out questions. Use a counter to cover any answers on the grid. The first person to fill their grid wins.
- Plot a route through the grid, explaining how you make each step. In the example above, you could start at 3 in the bottom right corner. The first move could be to multiply by 3 to move to 9. Then you could add 6 to move across to 15. Can you plot a route that covers every number on the board?

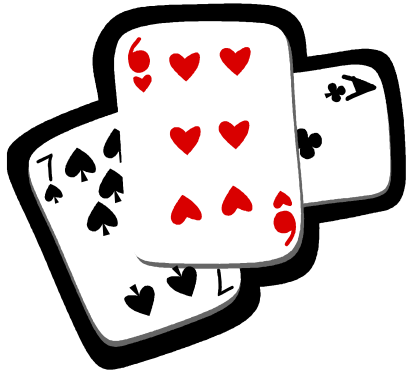
- Fill in the grid with any of the following numbers: 1, 2, 3, 4, 5, 6, 8, 9, 10, 12, 15, 16, 18, 20, 24, 25, 30, 36. Take it in turns to roll two dice. Multiply the numbers together and put a counter over the answer. The winner can be the person who has the most squares covered on the grid. Alternatively, to be a little more tactical, you could play it as 'connect 4', trying to get four in a row to win. It might be worth making these grids a little larger and repeating the numbers. See if you can work out which numbers are easier to roll more often!
- As a variation on the above game, you could use the numbers 1-12 and add or subtract the totals on the dice to simplify this activity.

Number Cards

Blank cards can be used to create simple games like pairs and snap by writing calculations on one card and an answer on another. Eg:



- Make lots of these for different calculations. Shuffle them and place them face down to play a game of pairs.
- Alternatively shuffle them and deal to play a game of snap.
- You could also lay them all out face up on the table and time how quickly you can match the question to the answer. Repeat this, seeing if you can beat your time.



Pack of Cards

A simple pack of cards can provide many games to play to sharpen up quick-fire number skills. Here's a few ideas that can be adapted fairly easily to the ability of any child.

Use one suit from the pack of cards. Remove the Jack, Queen and King. Shuffle the remaining cards in the suit. Turn over the first card—this is your starting number. Turn over the next card and add it to the first number. Keep doing this so you have a running total. When you get to the final card the total should always be 55 (Ace counts as 1). Use a stopwatch to time how quickly you can get through the suit. You can repeat this endlessly, trying to beat your time.

Adapting the game:

- You could just use numbers 1-5 as a starting point and then increase the number of cards you use.
- Add a second suit to increase the difficulty!

Using one suit (remove the Jack, King and Queen), shuffle the cards and place in a pile.

Choose a times table to practice Turn over each card and multiply that number by the times table. Repeat this for each card.

Variations:

Use a stop watch to time how quickly you can get through that suit.

Play a two-player version, where you each have a suit of cards and race to see who can multiply them all the quickest.

Adapting the game:

Choose more challenging times-tables to tackle, especially the 6, 7, 8 and 9s

Introduce the Jack, Queen and King as 11, 12 and 13 so you increase the difficulty of the times-tables!

Remove the Jacks, Queens and Kings from a pack of cards.

Shuffle the remaining cards and place them all face down on the table.

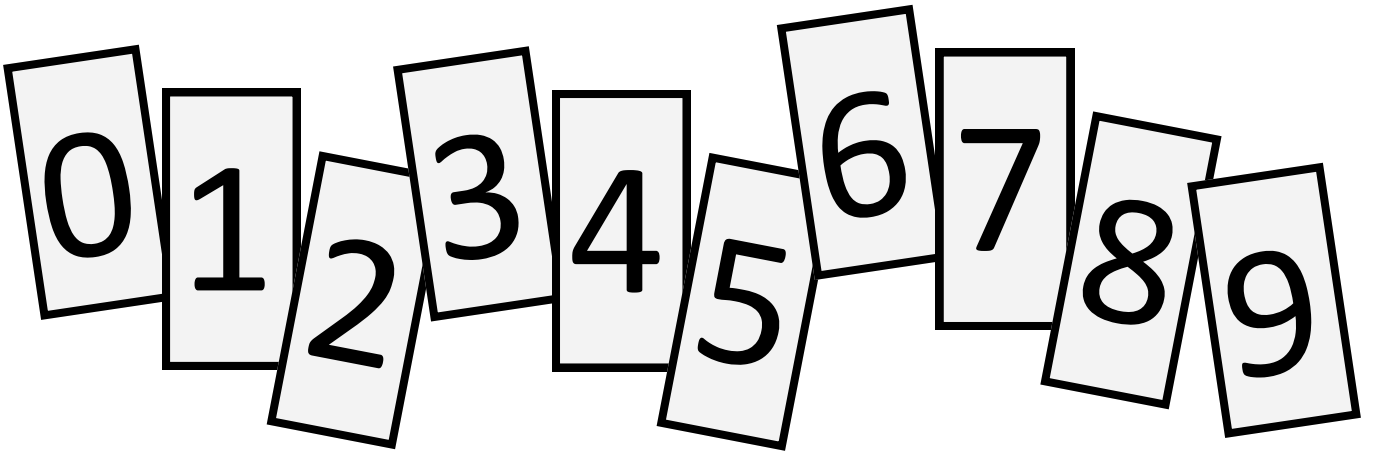
Pick up two cards and multiply them together. If you correctly do so, you get to keep the cards. If not, replace them face down on the table. Take it in turns—whoever has the most cards at the end of the game wins.

Adapting the game:

Add a time limit for solving the calculation so you have to become quicker at recalling the times tables facts.

Take out certain cards to make the game easier or harder—for example take out the 1, 2, 5 and 10 cards and leave in the rest, or vice-versa!

Instead of multiplying, add the cards together. Or you could subtract them, just bear in mind you might end up going in to negative numbers!



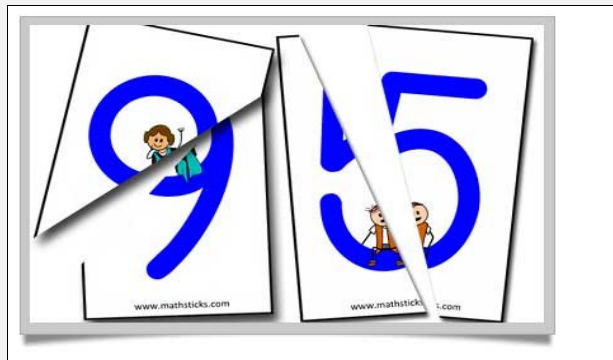
Digit Cards

You can use the set of digit cards in this pack to play a whole host of different games (and probably invent some of your own too!). Here are a few to get you started:

To improve number recognition you could cut a set of 0-9 digit cards in half.

Turn them over, laying them face down on the table and play a game of pairs to make the complete digit.

Alternatively, shuffle them and play snap as you would with a pack of cards.



Each player draws an addition calculation, replacing the digits with empty boxes, eg:

$$\begin{array}{r} \square \quad \square \\ + \quad \square \quad \square \\ \hline \\ \hline \end{array}$$

Take it in turns to take a card from the shuffled pile of place value cards. Decide where to place the digit in the calculation. Repeat until all the boxes are full. The aim can be to make the highest, or lowest, answer to the calculation.

You can simplify the game by just having HTU boxes, rather than a calculation.

The game could be extended by using 3, 4 or even 5 digit numbers.

Shuffle the 10 digit cards and lay them out in a row. Turn over the first card to reveal its value.

There are various games you could play with this:

- Reveal each card in turn and keep a running total. Time how quickly you can add them each in turn. (You should always end up with 45 as a total.)
- Play the same game but with subtraction — start at 45 and subtract to zero.
- Predict whether the next digit will be higher or lower (a bit like play your cards right!)
- Predict if the next card will be odd or even. If you play against someone else you could keep the cards if you are correct and the winner has the most cards at the end of the game.



Pick a digit card at random. Do not look at your own card, but hold it out in front of you so that everyone else can see its value. The aim of the game is for each player to work out the value of their own card. You can play by:

- Each player telling the others the total of all of the cards that they can see. Player must then deduce what their own card is from the amounts given.
- Players asking questions about their own card (eg. Is it a multiple of 5? Is it odd? Etc.) Take it in turns and see who can work out their number first.

Adapting the game:

- With just three players the game could be used to reinforce multiplication and division strategies. Two players show their digits, the player without a card multiplies them and announces the product. Each player must then use the one digit they can see (a factor) to calculate what their digit (the other factor) is.
- Simplify the game by playing in pairs where one person can see both cards and tells the other what the total is. The other player must then use their known card to work out the missing value.

I know the total of all the five cards is 21. I can see 4, 7, 3 and 2 which adds to 16, so my card must be...



2
1

2

3

4

5

6

7

8

9

0

+

-

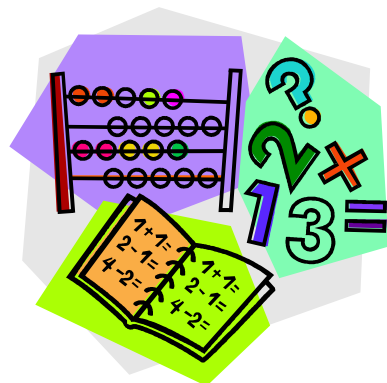
100 IDEAS FOR USING A HUNDRED SQUARE

- These ideas are in no particular order and can be adapted to any age range or ability.
- The aims for these activities are for children to learn to recognise numbers, understand relationships between numbers and find different ways of working with numbers.
- These ideas are only starting points and can be adapted and developed. Even the most simple of counting activities improve children's number fitness.

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

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

1. Cut up a hundred square and make it into a number line.
2. Colour all the even numbers and establish a rule for recognising even numbers.
3. Find the multiples of 3.
4. Play a game in two's. Each picks a number between 10-20. Add together the digits of that number and move that many spaces. The winner is the first person who is closest to 100.
5. Find the square roots of the numbers to the nearest whole number.
6. Pick 10 numbers and treble them.
7. Choose a target number; how many ways can you find to make that number?
8. Which number(s) is in the most different times tables?
9. Find the numbers where the digits add up to 9.
10. Pick a number between 1 and 9 and keep adding 10 until you get to the end of the number square.
11. Find all the numbers whose digits add up to 11.
12. Make your own 100 square.
13. Choose 10 numbers from the square and subtract them from 100.
14. Find two consecutive numbers which add up to a square number, e.g. 12 and 13 = 25.
15. Pick a number, reverse the digits and add them together. Is the answer different from adding the digits without reversing?
16. Find all the numbers containing a digit 1.
17. Find all the prime numbers.
18. Pick a number. Round it to the nearest ten.
19. Go to a prime number add 1 and divide by 4.
20. Divide any number by 10.
21. Reverse the number, read the new number.
22. Find any palindromes - numbers which are the same forwards and backwards e.g. 77
23. Multiply any number by 10.
24. Pick a number and add the number above or below it.
25. Find the square numbers.



26. Pick a number and halve it.
27. Think of a number pattern, use a cut up 100 square to make it, remove some of the numbers and get your friend to fill in the missing numbers or finish the pattern.
28. Cut the 100 square into jigsaw pieces. How quickly can you put it back together?
29. Pick a number, double it, add 1. Explain how to get back to your original number.
30. Start at 100. Write a number sentence that would get you back to 1.
31. From a cut up 100 square make a calendar for the month of your birthday.
32. Find all the multiples of 4.
33. Pick a number and find the next multiple of 6.
34. Make a zig zag hundred square, e.g. 1-10 goes from left to right, next row 11-20 from right to left, etc.
35. Find the multiples of 5.
36. Find your age.
37. Find numbers where the digits add up to 10.
38. Pick a number greater than 10, double the units digit, add it to your original number.
39. Use your hundred square to draw some snakes and ladders; play the game with a dice.
40. Find the multiples of 8.
41. Blank out some numbers. Can your partner work out which numbers they are?
42. Pick a number, double an odd number and subtract 10, halve an even number and add 1, keep repeating, can you get back to 1? Make your own rules.
43. Find your house number.
44. Pick a number, subtract 4 then subtract 3, keep repeating. How many calculations until you reach 1?
45. Colour in a times table. What fraction of the 100 square is coloured?
46. Colour in a times table. What percentage of the 100 square is coloured in?
47. Pick a number, subtract the number below. Try for 10 different numbers, what do you notice?
48. Put some coloured counters on a number pattern. How many patterns can you find?
49. Plot a journey around the 100 square. Write the journey in calculations.
50. Find the factors of 100.



51. Add the ages of all the people in your family and find that number.
52. Find 2 numbers which when added together give an even total.
53. Pick a number, add 100, is the answer a prime number?
54. Find some squares within the hundred square, add the corners together.
55. If A=1, B=2, etc., what numbers are your initials? What is the value of your name?
56. Form a circle of numbers.
57. Pick a number and add the next odd number. Find a rule about adding odds and evens.
58. Pick a number, shut your eyes, what numbers are either side of your number?
59. Find the age of your eldest brother or sister.
60. Pick a number, can you make your number by adding 2 consecutive numbers? Are there any impossible numbers?
61. Pick 2 numbers, find the difference.
62. Pick a number, shut your eyes, what numbers are above and below your number?
63. Pick a number, add 7, subtract 3, how many calculations do you do to reach 100?
64. Pick a number, multiply the units digit by 5, and add the tens digit to the answer.
65. Draw some rectangles on your hundred square, add up the numbers around the edge of each rectangle.
66. Find numbers which can be divided by both 2 and 3.
67. Using your cut up square, make a 7 x 7, or 8 x 8 number square. What is the last number in this square?
68. Pick a number, find 2 numbers which add up to your number. Are there any other pairs of numbers which make the same total?
69. Find a number with a prime number above and below it.
70. Choose a start number. Count back or forwards in 2s.
71. Pick a number, make a sequence by adding 5 each time.
72. Find a number with a digit 2 in it.
73. Pick a number, subtract the digits.
74. Pick three numbers. Add 2 of the numbers and subtract the third number.
75. Pick a number and divide it by 7. Is there a remainder?



76. In pairs, pick a number each and put a counter on that number. Using a knight's move (2 forward and 1 to the side) can you move to 1 or 100?
77. Pick a number, find its multiples. Is there a rule to move from one multiple to another?
78. In pairs, one person gives the first three numbers of a sequence, play hangman to guess the sequence to 100.
79. Find a number which can be divided by the sum of its digits.
80. Find all the multiples of 10.
81. Find the year of your birth, 19--
82. Pick a number; if it is even, halve it, if it is odd, add 1 and double. Can you get to 100?
83. Design your own rules for investigations to 100.
84. Find pairs of numbers which add up to 100.
85. Find 3 numbers which total 100.
86. Use the hundred square to fill in a multiplication square.
87. Using the knight's move, which is the fastest way of travelling from 1 to 100.
88. Find the multiples of 11.
89. Colour in a pattern on the 100 square. Write a list of the numbers. What do you spot?
90. Find numbers that total 50.
91. Choose your favourite number and say why it is special.
92. Find two numbers which have a difference of 13.
93. Find two numbers which add up to 21.
94. Pick 10 pairs of numbers and multiply them together.
95. Add three prime numbers. Is the answer always odd?
96. Add two prime numbers. Is the answer ever odd?
97. Pick 4 numbers. Using +, -, x, once each, what is the biggest number you can make?
98. Start on any number, divide by 2 and add the remainder. Do you always reach 1?
99. In pairs, each put a counter on 1. Each must follow one of the following instructions. Square the number then add 1, or add 1 and square the number. Move your counter to the answer and then repeat. What happens? Who gets nearest to 100 first? Pick a different starting point, does the result change?
100. Invent your own game using the 100 square!





Useful Websites

<http://resources.woodlands-junior.kent.sch.uk/maths/index.html>

Woodlands Junior School website is a great place to start when looking for maths resources online. They have collated the best of what is available on the internet and created a library of activities and games for children of all ages and abilities. Many of the other resources you will find on the web have links available here already so this is a great place to start if looking for an activity to support your child's learning. The resources are grouped under mathematical topics too so you can easily find what you are looking for. Another school website, which has similar resources, worth a look is:

<http://www.crickweb.co.uk/>

<http://nrich.maths.org/frontpage>

Nrich is an organisation specifically set up to offer resources for more able mathematicians. However, as you can select activities for all areas of primary education, you can find something appropriate for children of all abilities. One of the features of Nrich is that you can submit ideas and solutions so you can contribute to the maths community on this website.

<http://www.mathletics.co.uk/>

A website that we should all be very familiar with by now! This is a great resource for keeping maths skills sharp by a quick daily workout, competing against the computer or other children around the world. We hand out certificates (and prizes for those children who make the leaderboards on the website) in our Friday assembly.

<http://www.mrprintables.com/index.html>

This website has some useful printable resources that you can download, for example, digit cards, hundred squares and various other resources. There are some worksheets available for download too, however we wouldn't recommend printing off lots of these as the games contained within this booklet are more effective in terms of increasing children's 'number fitness'.