# Mathematics Games Booklet

Year 5

MATHS AT HOME

Mathematics is an important part of everyday life and there are lots of ways you can make it fun for your child. The way your child is learning to solve mathematics problems may be different to when you were at school. Get them to show you how they do it and support them in their learning.

As parents, family and whānau you play a big part in your child's learning, and you can support and build on what they learn at school too.

Shopping Activity- helping at the supermarket

- Which package is more expensive: $13.45 or $13.85? How do you know?
- This cereal is $4.50, that's 4 and half dollars. How much will 2 of them be?
- How much yogurt do you actually get in 6 packs? How much is in the big container?
- Compare the fruit roll ups, biscuits, and muesli bars. Which has more sugar?
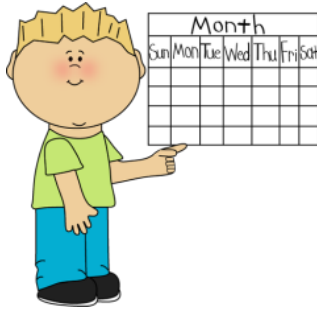
The Family Calendar

● *Family days*: Sit with your child and record on a calendar or give them a list of the family days that are celebrated every year and ask them record. This could be birthdays, holidays, and anniversaries. Each date can be found and the person's name written on the calendar square or sticker added to the box. Ask your child to look at the name of the month, what came before what comes next, and the day of the week that the day occurs on.

● The Family Calendar can be hung up at a child's eye height so they can check if regularly and be given responsibility for turning over the new page when the first of the month happens. Ask your child to practice with you by naming the order of days and months.

● *Special Dates*: when the school or team newsletters come home as your child to record the dates you need to remember on the calendar, like when netball starts, when school camps happens, when the disco is or when the term ends or begins

Encourage estimating skills, such as predicting how long a journey will take; how long it takes to set the table; how long it takes to walk the length of your street.

- Can you *draw a map* and show me how we can get to the shop?
- How long do you think it will take to walk from home to the end of our street?

Time

- Look for clocks and schedules. Ask children to read the time. If it is a digital clock, ask………
  - What it would look like on traditional clock?
  - Where would the hands be to make that time?

- If waiting for a bus, ask children to read the schedule and tell you………
  - What time the next bus comes?
  - What time does the last one come?
  - Is there a pattern for the bus times?

Let your child work out how much time it takes to do things or go somewhere using a timetable will give your child opportunities to calculate.

Number

Spot a number and use it as a "Launchpad" for naming things that make it: Example: "There is a 12 on a letterbox, that is _3x4_, _2x6_, _10+2_, _100-88_, _half of 24_ etc".

People Bingo

Has a birthdate that is a square number ----------------	Weighs more than 60 but less than 80 kg ----------------	Knows how to use a scientific calculator ----------------	Is wearing clothing that has a geometrical pattern ----------------	Number if family members is a prime number ----------------
Knows their own height in cms ----------------	Has more than 8 letters in their first name ----------------	Speaks more than one language ----------------	The number of pets owned by this person is an odd number ----------------	Knows what a palindrome is ----------------
House number is an even number ----------------	Is wearing a digital watch ----------------	Free Square Write your own name ----------------	Can count 5 in a language other than English and Maori ----------------	Has legs exactly the same length as mine ----------------
Can count to ten in Maori ----------------	Shares my birth month ----------------	Loves mathematics ----------------	Has used a computer frequently ----------------	Their present age is an odd number ----------------
Can write their name with both their right and left hand ----------------	Hand span is larger than mine ----------------	Knows when decimal currency was introduced to New Zealand ----------------	Knows the distance in kilometres from Auckland to Hamilton ----------------	Can remember their car registration number ----------------

Rules
1. Find a person for whom a statement is true.
2. Write that person's name in the appropriate box.
3. You may use the same person no more than twice.
4. Try to fill in a line- it can be a row, a column or a diagonal.
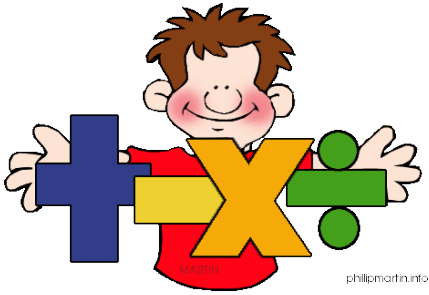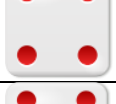
Make 100
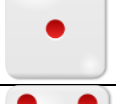
What you will need:
- Two six-faced dice
- Paper and pencil
- Two players

Rules:
- The aim is to achieve a total of 100 or as close to 100 as possible.
- Players take turn to roll the two dice and may combine them with any operation to produce a score.
- Play continues until one player reaches 100 or decides to stop close to 100. Players finish the round to see if any player ends up closer to 100 or makes 100.
- The player who reaches 100 or is closest to 100 is declared the winner.
- Players should be encouraged to keep a record of their own choices and calculations.

Variations: Vary the type and number of dice used.

For example:

Dice Show		Calculation	Running Total
(3) and (5)		3 x 5 =15	15
(6) and (3)		6 x 3 =18	33 (15+18)
(1) and (5)		1 + 5 = 5	38 (15+18+5)
(2) and (6)		2 x 6=12	50 (15+18+5+12)
(2) and (4)		2 x 4=8	58 (15+18+5+12+8)
(6) and (5)		6 x 5=30	88 (15+18+5+12+8+30)
(1) and (1)		1 + 1 =2	90 (15+18+5+12+8+30+2)
(4) and (3)		4 + 3 =7	97 (15+18+5+12+8+30+2+7)
(5) and (2)		5 – 2 =3	100 (15+18+5+12+8+30+2+7+3)

Reference
Swan, P. (2003). *Dice dazzlers. Short and simple dice games to promote numeracy.* A-Z Type: Bunbury.

THRICE DICE

This game encourages students to look for different ways of combining numbers. When mixing operations such as multiplication and addition, students should be made aware of the rule of order.

What you will need:
- Six-faced dice,
- Hundred (0-99) Grid playing board (see attached template)
- Two colour pens
- Paper (record equations)
- At least 2 players

Rules:
- Players roll the three dice and combine the numbers and various operations to form as many different results as they can. For example if 1, 3 and 5 are rolled, numbers such as 15 (3x5), 16(3x5+1), 14(3x5-1), 65(13x5), 7(5+3-1) and so on may be formed. Two-digit numbers may be formed by combining the digits (e.g. 53) but the player must state the number of tens and ones that are used i.e. 5 tens and 3 ones.
- Students record their equations and mark the appropriate square(s) on the board.
- Once the square has been claimed it may not be claimed again.
- Once the first player has finished claiming squares the second player rolls the dice and claims squares.
- The winner is the player who has claimed the most squares after a set number of rolls (this may be varied according to the time available).

Variations

➢ Only allow players to claim a set number of squares each turn. This helps to speed up the game.

➢ To encourage the second player to think while the first player is having a turn you could introduce the rule that after the first player completes his/her turn the second player may use the first player's numbers to claim some squares. After the second player believes he/she has exhausted the possibilities then he/she can roll the dice.

➢ Change the type of dice used. Players could use three eight-faced dice or perhaps a four, six, and eight-faced dice.

➢ Allow players to choose whether to use all three dice or just one or two.

Reference

Swan, P. (2003). *Dice dazzlers. Short and simple dice games to promote numeracy.* A-Z Type: Bunbury.

THRICE DICE PLAYING BOARD (TEMPLATE)

0	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

1, 2, 3!

This is a game for two players to practice quick basic recall (+, -, x).

Rules of the game
Version: One Hand Addition
   1. This game is played like "Paper, scissors, rock" where each player shakes one fist "1,2,3" and shows a selection of fingers (choose between 0-5).
   2. Winner of the round is the first to say the sum/total of two hands.
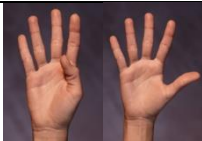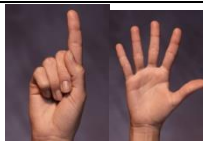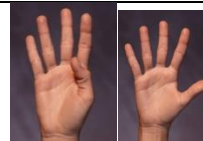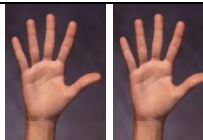
Variations
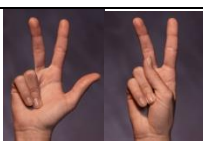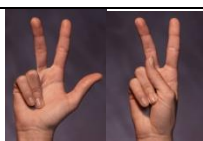   ◈ One Hand Multiplication-multiply each players hands
   ◈ Two Hand Addition- add the total of both hands to practice basic facts to 20
   ◈ Two Hand Subtraction- work out the difference between the total of each players hands
   ◈ Two Hand Multiplication- multiply the total of each players hands to practice multiplication facts

Note: Encourage players to shake their fist with fingers down to the floor/knuckles up then it is easier to see the fingers when opened out.

For example:

One hand				
	Player A	Player B	Player A & Player B	Answers
Addition (+)			+ (1 + 4)	5
Subtration (-)			- (5 – 2)	3
Multiplication (x)			x (3 x 2)	6

Two hands				
	Player 1	Player 2	Player 1 & Player 2	Answers
Addition (+)			+ (6 + 9)	15
Subtration (-)			- (10 – 4)	6
Multiplication (x)			x (5 x 10)	50

Quick Stop: An Addition (or Multiplication) Card Game

This card game is fun way to practice addition. Compete for the highest score as you flip over cards. Add up your cards until you reach 100 points. The first one there wins! Ready for a challenge? Check out the variations at the bottom of the page?

Skills:

- Addition
- Substraction

What you need:

- Deck of cards
- Pencil and paper for every player (to add up scores)

What You Do:
1. Place a well shuffled deck of cards, face down, in the center of the playing area.
2. Each player begins by drawing one card and placing it face up in front of themselves. Players write the value of this card down at the top of their papers. (Aces are worth 1, and face cards are all 10.)
3. When all players are ready, everyone draws a second card. They add the value of these cards to their totals.
4. Keep playing until one player reaches 100.

Variations:
- Play until the deck runs out. The player closest to 100, without going over, wins.
- Add jokers into the deck. If a player draws a joker, their score drops back to zero.
- Start with 100 points, and subtract your way to the finish.
- Need a challenge? Use multiplication to reach 1000.

Reference:
http://www.granby.k12.ct.us/uploaded/faculty/wyzika/Dice_and_Card_Games_to_Practice_Math_Facts.pdf

Card Activities

Snap + /- 1

What you will need: A deck of cards with the picture cards removed. Ace may equal to one or eleven.
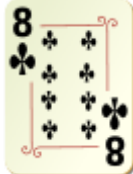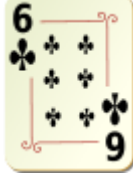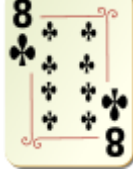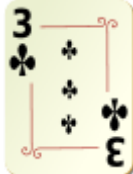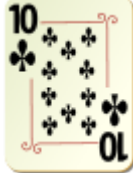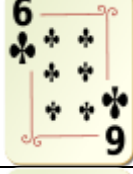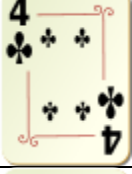
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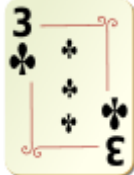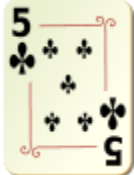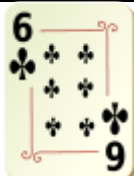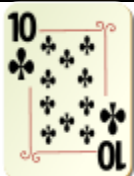
- ♣ The game is played along similar lines to "snap".
- ♣ The game is for two players.
- ♣ One player deals all the cards face down to the players
- ♣ Each player turns over their top card. Instead of slapping the pile of cards when the values on the two cards match, the pile of cards should be slapped when the values differ by one (+ 1 or -1). For example if a 7 is placed on the pile and then an 8 is discarded on top, a player may slap the pile and pick up all the cards. If an 8 was on the pile and a 7 was discarded then the pile of cards could also be slapped (more examples on p.8-9).
- ♣ The winner is the player with the most cards after a period of time or the player who ends up with all the cards.

Variations

- ♣ The players can change it to *Snap +2 or -2 (*snap when the values differ by two).

For example:

	Player A	Player B	
Snap + 1	8 of clubs	9 of clubs	SNAP
Snap - 1	6 of clubs	5 of clubs	SNAP
Snap + 1	8 of clubs	5 of clubs	*DO NOT SNAP*
Snap + 1 or - 1 (variations)	3 of clubs	4 of clubs	SNAP
	10 of clubs	9 of clubs	SNAP
Snap + 2	6 of clubs	8 of clubs	SNAP
Snap - 2	6 of clubs	4 of clubs	SNAP
Snap - 2	6 of clubs	3 of clubs	*DO NOT SNAP*

Snap +2 or – 2 (variations)	3♣	5♣	SNAP
	7♣	5♣	SNAP
	6♣	10♣	_DO NOT SNAP_

Reference

Swan, P. (1998). *Card Capers. Developing mathematics from playing cards.* A-Z Type: Bunbury.

Card Smarts

What you'll need……(1) number cards, (2) pencil, (3) and paper

What to do….

1. **How many numbers can we make?** Give each player a piece of paper and a pencil. Using the cards from 1 to 9, deal four cards out with the numbers showing. Using all four cards and a choice of any combination of addition, subtraction, multiplication, and division, have each player see how many different numbers a person can get in 5 minutes. Players get one point for each answer. For example, suppose the cards drawn are 4, 8, 9, and 2. What numbers can be made?

2. **How many numbers can we make?** Give each player a piece of paper and a pencil. Using the cards from 1 to 9, deal four cards out with the numbers showing. Using all four cards and a choice of any combination of addition, subtraction, multiplication, and division, have each player see how many different numbers a person can get in 5 minutes. Players get one point for each answer. For example, suppose the cards drawn are 4, 8, 9, and 2. What numbers can be made?
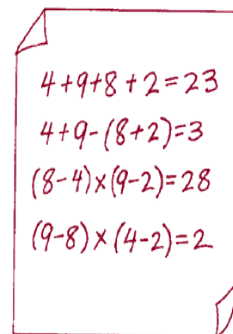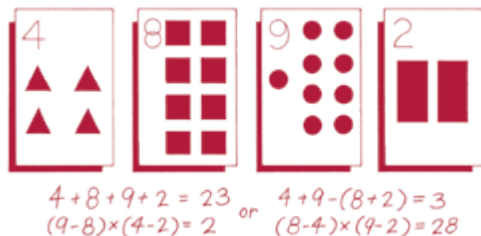
3. **Make the most of it.** This game is played with cards from 1 to 9. Each player alternates drawing one card at a time, trying to create the largest 5-digit number possible. As the cards are drawn, each player puts the cards down in their "place" (ten thousands, thousands, hundreds, tens, ones) with the numbers showing. Once placed, a card cannot be moved. The first player with the largest 5-digit number wins. For example, if a 2 was drawn first, the player might place it in the ones' place, but if the number had been an 8, it might have been put in the ten thousands' place.

Reference: http://www.math.com/parents/articles/funmath.html

Salute- What number is my card?

- ♣ 3 players
- ♣ A pack of playing cards. (Take out all the colour cards and 10s)
- ♣ Two players collect one card each and without looking at the card and put them on their forehead.
- ♣ The third player calls out the sum of the two cards.
- ♣ The two players then call out what card they hold on their forehead by looking at the other player's cards.
- ♣ The player who calls out first wins those cards.
- ♣ Continue playing till the cards are over.

For example:

Step	Player A	Player B	Player C
1			Calls out the total is 10
2	5 and 5?	9 and 1?	No
3	2 and 8?	3 and 7?	No
4	4 and 6?		Yes- Player A is the winner and gets the two cards

Cake Conversions

Rewrite these ingredients from a recipe for chocolate cake, converting the improper fractions to mixed numbers or whole numbers.

Chocolate cake (Make 4 cakes)

$^4/_2$ cups butter
$^8/_3$ cups brown sugar
12 eggs
$^{16}/_3$ cups of self-raising flour
$^4/_4$ cup plain flour
$^4/_3$ cup cocoa powder
$^7/_3$ cups dark chocolate
$^{12}/_4$ cups milk

Answers:

Chocolate cake (Make 4 cakes)

2 cups butter
$2\frac{2}{3}$ cups brown sugar
12 eggs
$5\frac{1}{3}$ cups of self-raising flour
1 cup plain flour
$1\frac{1}{3}$ cup cocoa powder
$2\frac{1}{3}$ cups dark chocolate
3 cups milk

Reference:
Lewis, H. (2012). *Explore more cards - Maths word problems (Book 1).* **Invercargill: Essential Resources Educational Publishers Limited.**