CONTENTS

Introduction

Much positive work has been achieved over the last twenty years by ‘The Summer Reading Challenge’, whereby children, with the help of their parents, are encouraged to read 6 books over the school summer holidays. The Summer Maths Activities Challenge is the Maths equivalent and engages learners and their families in games, puzzles and open-ended problems. It encourages the whole family to take up new fun activities that will promote learning. The Summer Maths Activities Challenge is cross-curricular and your child will be immersed in Art, DT, Science, History and Geography activities as well as Maths. Research on the internet is also encouraged.

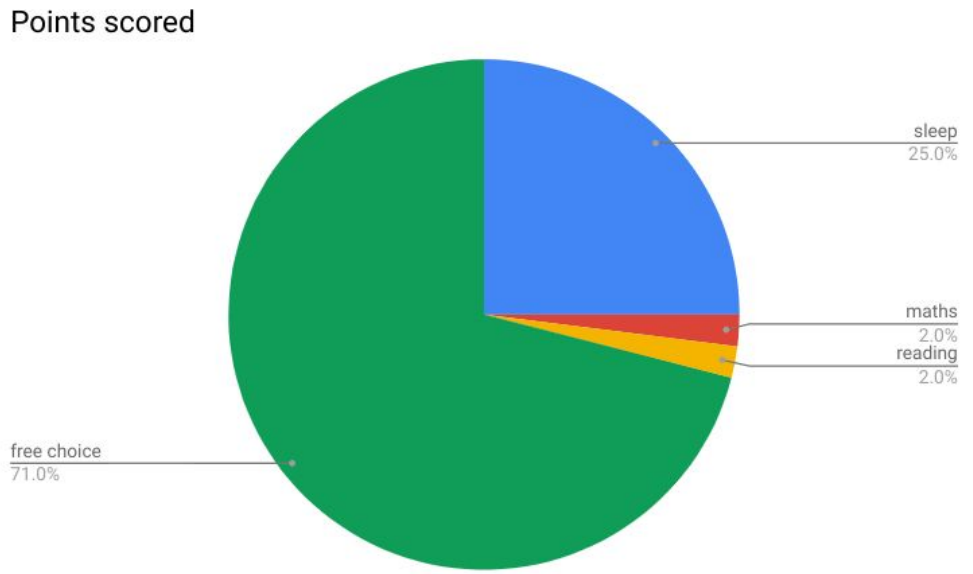
The Summer Maths Activities Challenge invites and supports the parent to fill the role of teacher during the summer holidays. Indeed ongoing parental input is vital to ensure that the process of learning is an enjoyable experience for the learner. This may seem like a scary prospect for some, however, all that is needed is a positive, helpful and caring environment. These books provide parents with pointers to enable them to easily facilitate their child’s learning.

I have recently read, ‘Good Ideas: How to be your child’s (and your own) Best Teacher’, by Michael Rosen, who advocates the power of ‘I don’t know’. He tells the story of a young David Attenborough, who had a keen interest in ‘old bones’. When the young Attenborough stumbled across ‘old bones’ while out on his explorations he would take them home for his father, a GP, to examine. Attenborough Senior could quite easily have named the various bones that his inquisitive son brought home, instead, however, he would say, ‘‘I

don’t know maybe we could work it out together’’. ‘Working it out together’ is the very essence of this book.

The Summer Maths Activities Challenge encourages families to negotiate treat days once the book has been completed. This proves a greater incentive for the learner than merely giving out shiny stickers and glossy certificates. Treat days are fun for all the family too!!

The pie chart below illustrates the amount of school work your child should complete during the summer holidays. This equates to 20 minutes per day or 2 hours per week. It is important that the time spent on The Summer Maths Activities Challenge during the school holidays is balanced and spread across the whole summer holidays, not just 6 hours in the first week followed by 6 hours in the last week. The Pie Chart should be an important reminder that this is your summer holiday and that maths and reading are just a very small part of enjoying yourselves in the coming weeks.



How you can help your child with Maths this summer

1. Be encouraging! Encourage an inquisitive mind by asking your child questions about how they solved a problem or how puzzles could perhaps be solved in a different way (which they always can).

2. Making a mistake is great! Research has recently shown that the brain actually grows when a mistake is made. Accept mistakes can be made and don't focus on getting the answer correct all the time.
3. It's okay not to know the answer. A critical learning opportunity for children is to see that even adults do not have all the answers. Children should realise that learning never stops. It is what you do next that is really important - do you walk away because you don't know the answer or do you try to problem solve and figure it out together?

4. Do not share your own mathematical failures with your child or they will start to believe that it is their failure too and this may become a self-fulfilling prophecy. Encourage your child to develop a ‘Growth Mindset’ about Maths, that is, a positive ‘can do’ attitude. Your child then believes it is possible to succeed in Maths.

5. Do not emphasise speed. Some of the greatest mathematicians in the world are great because they think about Maths carefully and deeply. Completing activities with a time pressure can cause anxiety and create a negative impression of what it is to succeed in Maths.

6. Play with your child! Board games are a great way to spend time with children and choosing the right board game can provide hours of fun, challenge and learning.

7. Speak ‘Maths’. Using the correct mathematical vocabulary with your child will expose them to language they are expected to know. If a 4/5 year old child can learn the names of all the dinosaurs and say them correctly then no mathematical word is too ‘long’ or ‘complicated’.

8. Find Maths in the world around you. Children very often leave school with the impression that Maths only happens during Maths lessons and with a Maths book. Maths is so much more than that. Make your child aware that Maths takes place around us on a daily basis.

RUCSAC

Whenever you are faced with any written mathematical problem always use RUCSAC

R = Read, read through the problem 3 times

U = Underline, underline the key numbers and words

C = Calculation, choose the correct operation, either a mental or written method to calculate

S = Solve

A = Answer, check that you have answered the question. What did you need to find out in the first place?

C = Check, check your answer. Use another method to check your answer

Pocket Money Problem

Work out the following problem and then try it on whoever pays your pocket money.
Adam offers to take a cut in pocket money. He receives just 1p a week for the first week, but to make things fair he then asks that his pocket money doubles each week thereafter.

Week 1 1p
Week 2 2p
Week 3 4p

On which week would Adam get £1,000 a week?
On which week would he get £50,000 a week?
On which week would he get £1,000,000 a week?

Music Festival

Alex, Sam, Lily, Lajya, Eve and Harry are going to The Nearly Music Festival. All acts are tribute artists.

Stage 1	Stage 2
12.00 Ed Sheeran	12.00 Little Mix
12.45 Adele	12.55 The Police
1.40 The Jam	1.30 Drake
2.20 Rihanna	2.20 Bob Marley
3.05 Craig David	3.10 Ellie Goulding
4.00 One Direction	3.55 The Beatles

1. If the festival finished at 5 pm, which artist played for the longest/shortest time?
2. If the stages are a 5-minute walk apart would it be possible to watch the end of The Police and still see all of The Jam's performance?
3. The Jam played 8 songs. How long would each song last if they were all of equal length?

4. Can you find a solution to Question 3 if all the songs were different lengths?
5. The tickets were £9.50 each. How much did the tickets cost altogether?
6. There were 2,000 people at the festival. How much ticket money was taken altogether?
7. Car Parking costs £5 per car. How much money was taken for 798 cars?
8. Make a timetable of who you would see if you attended this music festival. Remember it takes 5 minutes to walk between stages.

Long Multiplication

Only use the digits 3,6,7 and 9.
Make multiplication sums with 2 digits by 2 digits.
What are the largest and smallest answers you can find?

Beach Clear up

“90.5% - the proportion of plastic waste that has never been recycled. Estimated at 6,300 million tonnes. 12% has been burnt and 79% is either in landfill or the natural environment”

Winner of the statistic of the year 2018

Mrs. Froggett, a Marine Biologist, gave a talk about plastic pollution in our oceans at Florence, Guy, Darcy and Kaydan’s school.

1. Mrs. Froggett said that there are a trillion pieces of plastic waste in the oceans. Find out how to write a trillion.
2. The worst area for plastic waste is the Great Pacific Garbage Patch, which is off the Californian coast. The size of this is twice the size of Texas, which is 268,597 miles squared. How large is the Great Pacific Garbage Patch?
3. 500 billion plastic bags are used in the world every year. There are about 7 billion people in the world. How many bags does each person use per year?
4. It can take up to 1,000 years for plastic to degrade. How many days is this?
5. 90% of all rubbish in the oceans is plastic. What percentage is the rest of the rubbish?

After hearing Mrs. Frogett’s talk the children decide to organize a clear up at their local beach. With friends and family, the clear up group numbered 20 people.

6. In the first hour, the group collected 520 pieces of plastic. How many pieces of plastic did each person pick up if they all picked up an equal amount?
7. In the second hour, the amount of plastic picked up increases by 10%. How many pieces were collected in the second hour?
8. I normally drink 12 bottles of water each week. How many fewer water bottles will be needed in the next year if I start to use my own reusable drink bottle?
Can you think of any positive steps governments or families could take to help with this global problem?

Rich for a Day

You have just won £1000 !!!!!!!!!
You must spend it all today.
You can not give any money away.
You can not buy more than two of the same thing. Keep a record of how you would spend your money.

Mathematical Anagrams

An anagram is a word where the letters have been mixed up e.g
VEEN = EVEN

Can you unjumble the following anagrams? They are all Maths words you should know.

IMLLOIN =
EAAR =
CTAUE =
ADEMLCI =
DIOBUC =
NTPENGOA =
UTTSBRAC =
FROCATNI =
EESPRH =
MVULEO =
AREUSQ RBUMNE =
GPNONAET =
RBAHRACT =
IPREM UBNMRE =
YCPATICA =
ATORI =

Make up some mathematical anagrams for your friends and family.

Magic Square

Put the following numbers 4,3,2,1,0,-1,-2,-3,-4 into the grid to make a magic square that adds up to 0. All rows, columns, and diagonals must add to make 0.
Can you find more than one solution?

Ed Pratt Unicycling around the World

This is a picture of Ed Pratt. Use the internet to find out why he took up unicycling. Also, find out when he started his trip and which route he took. Write 5 interesting number sentences about Ed's adventure.

Skiing

Thomas, Barnaby, Neve, and Phaidra want to try skiing. They decide to go to their nearest ski slope.

1. They get on a bus at 9.45 am and arrive at the ski slope at 10.18 am. How long is their journey?
2. At the ski slope, they each need to hire kit for 4 hours.
Skis cost £9.99 for 4 hours
Boots cost £2.99 for 4 hours
Gloves cost £0.50 for 4 hours
How much did they each have to pay for their kit?
What is the total cost of kit for all four children?
3. They start on the small ski slope, which is 15m long.
Each child does 7 runs. How far do they ski on the small slope altogether?

4. At the end of each run they have to get a lift back to the top of the slope. The lift is 18 m in length, how far is this in centimeters?

5. Before lunch, they decide to have a race. Their times are as follows:
Thomas 5.98 secs
Neve 6.15 secs
Phaidra 6.61 secs
Barnaby 6.96 secs
How much quicker was Thomas than Phaidra?
How much slower was Barnaby than Neve?
(*Remember there are 100 milliseconds in 1 second*)

6. After lunch, they decide to try the big ski slope, which is 5 times as long as the small slope. How long is the big slope?

7. How many runs would you need to ski to complete 1km?

8. Thomas crashed ⅘ of the way down the big slope on his first run. He slid right down to the bottom. What distance did he slide?

9. Neve crashed and did 5 ¼ complete somersaults. How many degrees did she spin through?
(360 ◦ *in* 1 *spin*)

10. They have another race. If they ski at exactly the same speed they skied on the small slope what would their new times be?

11. As they leave they see a sign which offers 20% off kit hire next week. How much would each child save?

Multiplication and Division

1. 643 x 10 =
2. 80 x 5 =
3. 3 x 3 x 3 =
4. (9 x 8) - (6 x 6) =
5. 17 x 6 =
6. 0.4 x 100 =
7. 9 squared =
8. 20 x Z = 180 Z =
9. 3.4 x 6 =
10. 4 x 5 x 6 =
11. 45 ÷ 9 =
12. 640 ÷ 8 =
13. 63 ÷ 3 =
14. 970 ÷ 100 =
15. £3.98 ÷ 2 =
16. ⅕ of 75 =
17. $\sqrt{36}$ =
18. (100-25) + (9 x 6) =
19. 6.765 x 100 =
20. 90 x 80 =
21. Find the area and perimeter of a square with sides of 15 cm
22. ___ x 6 = 126
23. ___ ÷ 4 = 14
24. 25 x 16 =

Cupcakes

Recipe for cupcakes. https://www.bbc.com/food/recipes/cupcakes
This recipe is for 12 small cupcakes.

1. Can you work out how much of each ingredient you would need if you were going to bake 18 small cakes?
2. You organize a cake sale to sell the 18 cakes you make. You sell each cupcake for 35p each. How much money do you make?
3. You donate the money to charity and your mum adds 20% to your total. How much money do you give to your favourite charity?
4. 6 children bake cakes for a cake sale
   Adam makes 8 cakes
   Charlie makes 16 cakes
   Hope makes 24 cakes
   Eva makes 20 cakes
   Harriet makes 40 cakes
   Zac makes 100 cakes

The children want to make between £10 and £12 each. How much should they each sell their cakes for? Is it possible for each child to make exactly £12? How much would they have to charge for each cake?

Mixed bag

1. 1.2 m = mm
2. 9 a.m to 11.20 pm = hours mins
3. 165 - 98 =
4. £5 - £3.23 =
5. ¾ + ⅛ =
6. 125 x 5 =
7. 34p + 61p +89p =
8. £29 ÷ 5 =
9. 1.3 Km = m
10. ⅕ = 3/
11. Write 487,621 in words
12. 1 - 0.01 =
13. 900 x 7 =
14. 0.59 + = 1
15. 7 ½ = /2
16. Prime numbers between 10 -20
17. 4.08 ÷ 6 =
18. Draw a right angled triangle
    Draw a scalene triangle
19. 7000 - 16 =
20. 10% of 860 =
21. Round 2174 to the nearest 100
22. 1.65 km = m
23. 3.45 x 100 =
24. Write 1 million and one in numbers
25. A clock that reads 15.15 is 12 minutes slow what time should it read?

Multiplication Grid

Fill in this multiplication grid. Time yourself to see how long it takes.

x	10	8	0	6	7	9	11	12	3
3	30	24	0	18					
5									
9									
12									
2									
20									
4									
6									
7									

Questions correct out of 81 _____

Time taken _____

Work on any tables that you got wrong. You should be working towards instant recognition of all tables 2-10.

Fractions, Decimals and Percentages

Complete the table

Fraction	Decimal	Percentage
71/100		
1/4		
9/100		
	0.86	
	0.03	
	0.9	
		99%
		41%
		75%
		120%

Put these in order, largest to smallest

2. 0.16, 0.60 61%
3. ¾, 34%, 0.43
4. 0.86, 8%, 68%
5. 66%, 0.5, ⅕
6. Find 10% of 420
7. Find 30% of 420
8. Aaron eats ⅖ of a pizza and Joseph eats 45%. Who ate the most pizza? How much of the pizza is left?

9. Use the following numbers to make a fraction and a decimal that are equal

0, 5, 4, 8 = 4/8 = 0.5

0, 3, 3, 10 =

0, 6, 3, 5 =

0, 8, 5, 4 =

Make up some fraction, percentage and decimal questions for someone in your family to answer.

<u>Posting a Parcel</u>

Class 5B has been writing letters to their pen pals in New Zealand. Maisie and Henry are planning to send birthday gifts to their pen pals. Maisie wants to send a water bottle.

Henry wants to send a football. Work out how much it would cost to send each parcel. Hint you could use the internet to find companies, which deliver parcels or you could go to your nearest Post Office to ask. Always go with an adult.

Times Snap

To play Times Snap you will need a pack of playing cards. Take out the picture cards.

1. Deal an equal number of cards to both players.
2. Each player turns over their top card.
3. The first player to multiply the two numbers together and say the correct answer wins the cards.
4. After all the cards have been turned over count up to see who has the most cards.

Play again but this time with picture cards as well

Jack =11

Queen =12

King = 13

Try playing with 3 players. Only use cards numbered up to 8

If cards shown were 2, 3 and 7 Do 2 x 3 x 7 = 42

Dice Darts

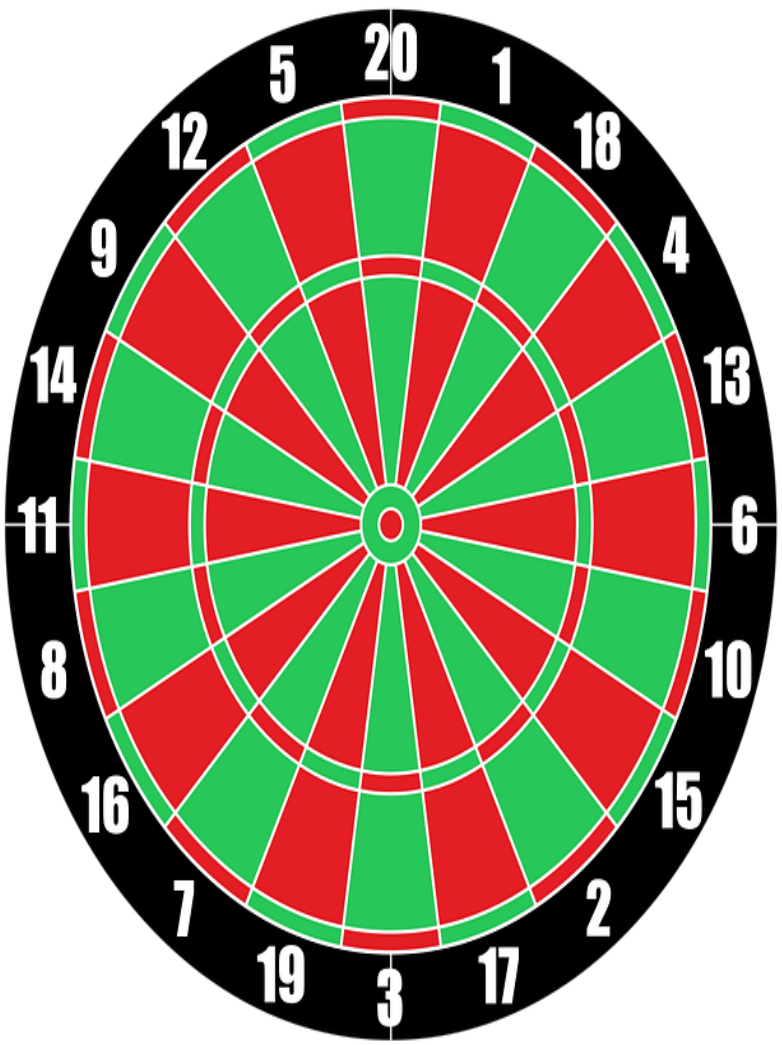
A game for 2 players

The first player to reach 500 is the winner.

Player 1 throws a dice. Multiply the number shown on the dice by the number the dice has landed on the board.

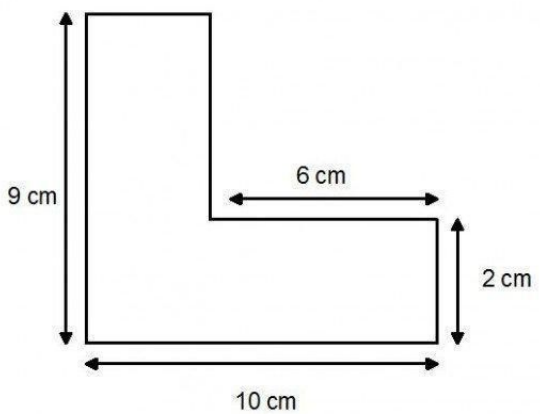
Player 2 has their go.

Keep a running score. If the dice misses the board score 0.



Perimeter and Area

1. Find the perimeter of this rectangle
2. Find the area of this rectangle
3. Can you find a shape that has an area and perimeter that are of equal value?



1. Find the 2 missing sides
2. What is the perimeter?
3. What is the area?
4. Using a tape measure find the perimeter and area of your bedroom floor.

5. Carpet is £7.99 per square metre. How much would it cost to lay a carpet in your bedroom?
6. The carpet fitter charges £45. What would be the total cost?
7. A wooden floor costs £5.99 per square metre. How much would this cost for your bedroom?
8. If it costs £75 to lay a wooden floor, what is the total cost?
9. Which is the cheapest option, carpet or wooden floor and by how much?

Mixed Bag

1. 5 ½ minutes = seconds
2. 11,000 - 10 =
3. 0.4 x 100 =
4. £190 ÷ 5 =
5. 71p + 39p + 29p =
6. 6.1 litres = mls
7. A cuboid has how many : faces
   edges
   vertices
8. (4x9) + (8x7) =
9. All factors of 24 =
10. 0.8kg + 0.8kg =
11. 19 x 6 =
12. Add 46,000 and 174,298
13. What is 70 squared
14. 164.9 x ÷ 100 =

Landscape Gardener

Austin, Jessica, and Callum are landscape gardeners. They need to pave around the outside of a flower bed which is 2m X 2m. Each square slab is 1m 2.

	Flowerbed	IFlowerbed	
	Flowerbed	Flowerbed	

They need 12 slabs.

How many slabs would they need for a 3 x 3 flower bed?

How many slabs would they need for a 4 x 4 flower bed?

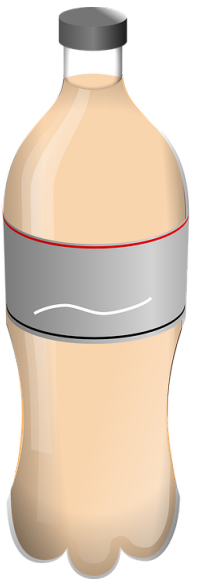
Do you see a pattern in your answers? Can you work out the number of slabs needed for a 10 x 10 flower bed?

What about a flower bed 50 x 50

Does the pattern change if the flowerbed is not a square? Try 6 x 3

Water Fight

It was a lovely hot summer's day. The temperature was 26 degrees. Harry, Will, Lilly, and Sebastien decide to have a water fight.



Estimate the capacity of the 4 containers

Bucket = Frying Pan =

Bottle = Pipette =

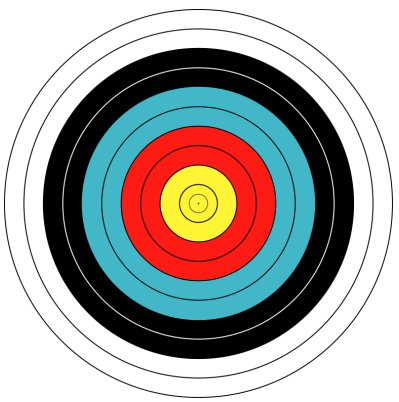
Find 5 containers with a capacity greater than 1 litre and 5 with less than 1 litre in your house.

Making a thousand

375	712	55	20
50	2	400	5
190	138	485	4
240	657	10	143

Using numbers from the table and +, -, x and ÷
find 10 ways of making 1,000
Here is 1 way:
(657 + 143) + (20 x 10) = 1,000

Archery



On the target Yellow =10 points
Red = 8 points
Blue = 6 points
Black = 4 points
White = 2 points

Rouhan, Mia, Charlotte, Alex and Alex's dad go to their nearest archery range.

1. They travel by car at an average speed of 30 miles per hour. Their journey takes 18 minutes. How far is the range from their house?
2. The cost for archery is £4.50 for a child and £6 for an adult. How much do they pay?
3. Would it be cheaper to buy a family ticket for £20? If so how much cheaper?
4. With Rouhan's first 5 arrows he hits 2 Reds 2 Blue and 1 Black. What is his score?
5. Mia hits 1 Yellow, 1 Blue and misses the target 3 times. What is her score?
6. Charlotte scores 1 Blue and 4 Blacks. What is her score?
7. Alex scores 1 Yellow, 3 Black, and 1 miss. What is his score?
8. Alex's dad scores one of each colour. What is his score?
9. Put the group's scores in order, highest to lowest score.
10. What would each person score if you multiply their scores rather than adding them? Would this change the order?
11. Charlotte scores 30 on her second go. Find 5 different ways she could score 30?

Find 5 different ways you could score 24 with five arrows.

How many ways to pay?

Rosie can only use £1, £2 coins, £5 and £10 notes.
Find out how many ways she can pay for items costing £1, £2, £3, £4…….up to £10

	£1	£2	£3	£4	£5	£6	£7	£8	£9	£10
	1				4					

e.g If Rosie had to buy something for £5 there are 4 possible ways of paying:

£1 £1 £1 £1 £1

£2 £1 £1 £1

£2 £2 £1

£5

Work out all the ways to pay the other amounts. Show your working and fill in the table.

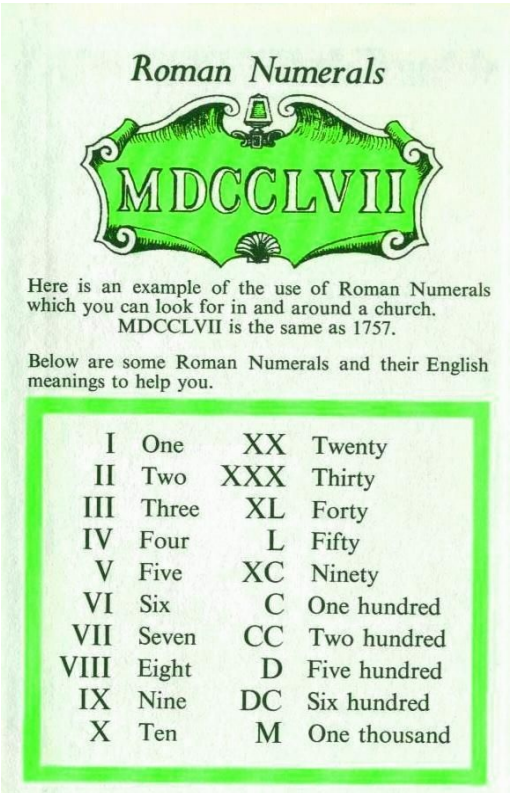
Number Patterns

Complete the following number patterns

1. 1, 2, 4, 8, ___, ___, ___
2. 0, 15, 30, 45, __ , ___, ___
3. 1, 10, 100, 100, ___ , ___ , __
4. 100, 80, 60, 40, ___ , ___, __
5. 1, 4, 9, 16, ___, ___, ___
6. 0.3, 0.6, 0.9, ___, ___, ___
7. ⅛ ¼ ⅜ ½ ___,___, ___
8. 0,1,1,2,3,5 __, __ , __
9. 81, 64, 49, 36, __, __,__
10. -15, -12, -9, -6, __, __, __
11. 0.4, 0.8, 1.2, 1.6, __, __, __
12. 256, 128, 64, 32, __, __, __
13. 63, 56, 49, 42, __, __, __
14. 1, 3, 9, 27, __, __, __
15. 555, 666, 777, 888, __, __, __
16. 6, 13, __, __, 34, __
17. 5, __, __, __, 45, 55
18. 16, 136, __, __, 496
19. 15, 11, 7, __, __, __
20. 6.354, 63.54, 635.4, __, __, __

Make up 5 of your own number patterns for a family member or a friend to complete.

Roman Numerals



Give your answers in Roman Numerals

1. A car park has XX rows with L cars in each row.
How many cars does it hold?
2. A teacher drives IX miles a day to school. How far will she drive in V days? (Remember it is a return journey)
3. Abhik bought XI lollies for XVp each. How much did the lollies cost?
4. Abbie thinks of a number, she subtracts VII and then divides by IV. The answer is VI. What was her starting number?
5. There are XII classes in a school with XXV children in each. How many children go to the school?
6. A swimming pool is XVIII metres long. How far would Alex swim if he swam IX lengths?

7. D - CCXX =
8. Write down the first prime number after X.
9. Write the number of degrees in a right angle.

Make up 3 questions using Roman Numerals for someone in your family to answer.

Healthy Living

You are going to see how active you are. Use a pedometer or an app to record the number of steps you take today.
If you haven't got a pedometer or an app available work out a good method of working out your number of steps without having to count every step.

10,000 steps is a target a lot of people try to reach. How close did you get to this figure today?

How accurate do you think you have been?

Work out what day you were born on

Check using the following method
Choose a date February 7 1964

Use the last 2 digits of the year	64
Divide by 4 ignore the remainder	16
Add these 2 numbers together	80
Add the date	7
	87
Add the number for the month Feb 3 (Table 1)	90
Add number for this year 1964 (Table 2)	0
	90
Divide by 7	12r6

The remainder gives the day of the week see Table 3
I was born on a Friday !!!!!!
I checked and it is true! I was born on a Friday.

Table 1

Jan	1 (0 for a leap year)
Feb	4 (3 for a leap year)
March	4
April	0
May	2

June 5
July 0
Aug 3
Sept 6
Oct 1
Nov 4
Dec 6

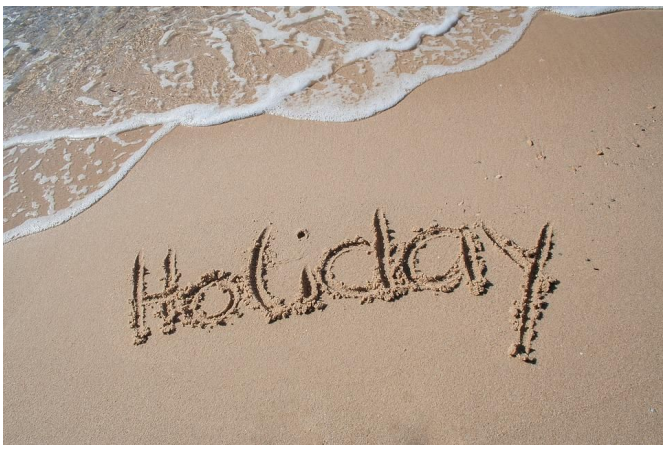
Table 2
Year beginning 18 add 2
Year beginning 19 add 0
Year beginning 20 add 6

Table 3
Sunday 1
Monday 2
Tuesday 3
Wednesday 4
Thursday 5
Friday 6
Saturday 0

Use this method to find out which day of the week you and your family were born. Can you think of a famous date in history to see what day it was?

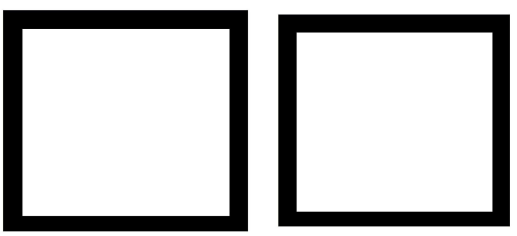
To double check all your results google dayofbirth.co.uk This will give you lots of other interesting facts about when you were born.

Holiday



1. How many days off school will you have this summer holiday?
2. How many hours off school will you have?
3. Estimate as a fraction the amount of sleep you will have?
4. What fraction will be spent watching TV?
5. What fraction will be spent doing school work?
6. What fraction will be spent playing?
7. Add up all the fractions, hopefully, they will all have the same denominator (24). What will you do with the rest of your time?

Square Problem



Cut out 2 squares the same size.
Lay them side by side. In what way can you cut these up so that when you rearrange the pieces they make a square?

Area investigation

Investigate what happens to an area when you double the length of different shapes.

Squares

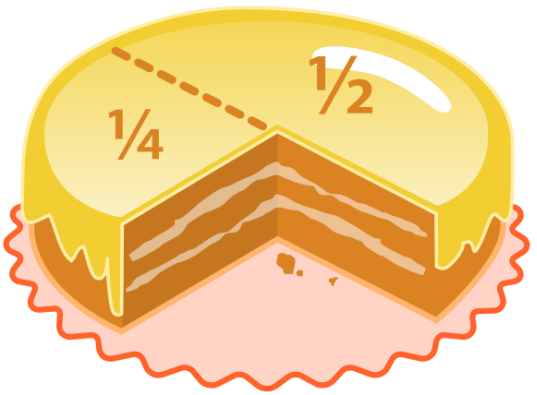
Original side cm	Original Area cm2	Enlarged Side cm	Enlarged Area cm2
3	9	6	36
4	16		
5			
6			
7			
8			
9			

What do you notice?

Work out the following:

Original side of 20 cm
Original side of 50 cm
Original side of 100 cm

Fraction Match



Make the following fraction cards

½, 3/6, ¾, 6/8, ⅓, 3/9, ¼, 4/16

⅗, 6/10, ⅙, 3/18, ⅕, 3/15, ⅖, 4/10

Now you are ready to play ‘fraction pairs’.

Turn the cards over so you can’t see the fractions. The first player turns 2 cards over. If the cards are equivalent fractions the player keeps them. If you pick up two cards and the fractions shown are not equivalent, put them back down in the same position face down and the next player takes their go.
The winner is the player with the most cards when all the cards have been claimed.

Make some different cards with other equivalent fractions?

Symmetrical flags

Look at the following flags, work out the number of lines of symmetry for each flag.

Can you name the countries these flags represent?

Rent a Car for your holiday

You need to find the cheapest car to rent for a holiday. You need to hire the car for 7 days and you will drive 500 miles during the holiday.

Type of car	Basic Price	Insurance	Mileage	Total Cost
Smart Car	£109	£30 a day	300 miles free. Then 5p a mile	
Ford Fiesta	£120	£25 a day	400 miles free. Then 5p a mile	

Fiat 500	£135	£24 a day	450 miles free. Then 3p a mile	
Peugeot 107	£160	£18 a day	Unlimited miles free	

Dice Trick

Throw 3 dice
Double the first dice
Add 2
Multiply by 5
Add the second dice
Multiply by 10
Add the third dice
Subtract 100
Try this a few times, can you see a pattern?

Fibonacci Designs with Number Patterns

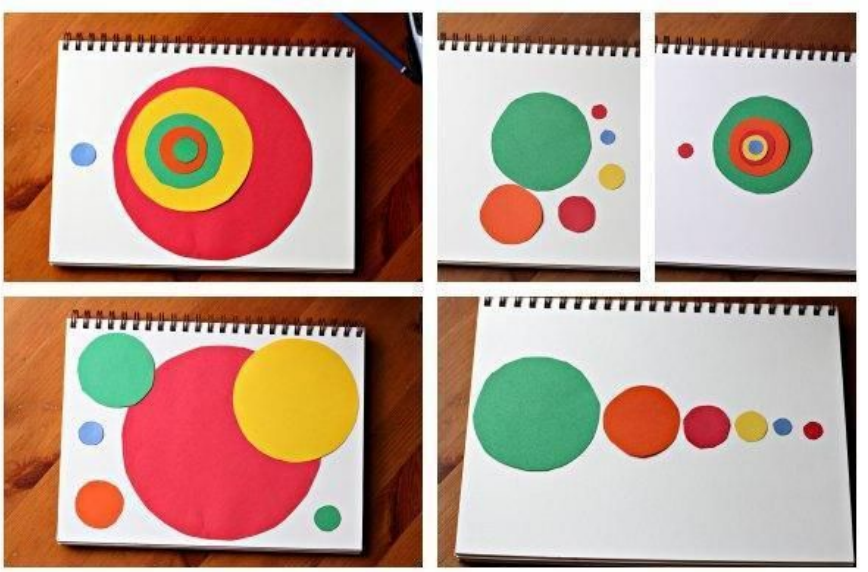
0, 1, 1, 2, 3, 5, __, __, __, __, __,

Follow this pattern, add the first 2 numbers to get the third number.
Follow this pattern until you reach 1,000.

This pattern is called The Fibonacci Pattern. Fibonacci was a mathematician, who lived in Italy during the 12th century. Fibonacci introduced the pattern to us from the Hindu Arabic culture. It is an important pattern, which can be seen in nature, such as, for example, on the spirals of seashells.
Follow the pattern below:
½, ½, 1, 1 ½, __,__, __,__, __, __

Using coloured paper and a compass draw circles starting with a radius of ½ cm and following the Fibonacci pattern you have just completed.

Cut out circles and make a pattern on plain paper by sticking them down.



City Populations

The following cities have the largest populations in the world At the moment they are listed alphabetically. Put the cities in order largest to smallest.

Beijing	China	20,383,994
Cairo	Egypt	18,771,769
Delhi	India	25,703,168
Mexico City	Mexico	20,998,543
Mumbai	India	21,042,538
New York	USA	18,593,220
Osaka	Japan	20,237,645
Shanghai	China	23,740,778
São Paulo	Brazil	21,066,245
Tokyo	Japan	38,001,000

1. Write the largest population in words.
2. Where would London come on the list?
3. Take the largest population total away from the smallest population on the list. What is the answer?
4. Use a calculator if you need one to find the average population of these cities.

Research the largest 10 cities in the UK. Write a similar problem for someone in your family.

Fractions Quiz

1. Change 7/5 into a mixed number
2. Change 15/4 into a mixed number
3. Change 7¾ into an improper fraction
4. Change 3⅗ into an improper fraction
5. ⅘ + ⅖ =
6. ⅛ + ¼ =
7. ⅔ - ⅙ =
8. ⅝ - ½ =
9. ⅕ of 45 =
10. Find 2/7 of 63 =
11. ½ x 8 =
12. ¼ x 7 =
13. Write 12/50 as a decimal
14. Write ⅘ as a percentage
15. Write 6.06 as a mixed number
16. There are 240 tea bags in a packet, 7/20 have been used. How many are left?
17. Write 53% as a fraction
18. Put these fractions in order smallest to largest
    ⅚, ¾, 7/12
19. What fraction of yesterday were you asleep?
20. 64 out of 88 children at a school have school meals, write this as a fraction in a simplified form

Look at all your answers on this page. Can you see any fractions that you could simplify?

Who stole the Ferrari ?

Mr. Smart parked his yellow Ferrari outside the supermarket at 11.50 am. He returned at 12.01 pm and found it had been stolen.
Work out who took it from the clues below?
Mrs. Jones arrived by bus at 11.00 am. She was in the Italian Restaurant for 45 minutes. She walked to the bookshop which took 4 minutes. She browsed in the bookshop for 20 mins before getting the 1.00 pm bus home.
Mr. Snagbottom cycled into town. He arrived at the Post Office at 11.10 am. There was a queue and he had to wait for 15 minutes. He then changed his library books. He stayed in the library for 12 minutes. He then walked to the grocery shop which took 5 minutes and bought a pint of milk. It took him another 5 minutes to get back to his bike. He cycled up Bond Street and was home by 12.05 pm.
Mr. Grabbit finished his shift at the factory at 11.40 am. He ran to the tube station and got the 11.53 am, which was 5 minutes early.

Mrs. Buffon arrived for her hospital appointment at 10.55 am. She had to wait an hour and a quarter before she was seen. She then walked to the Italian Restaurant.
Mr. Blewitt went to see a film that started at 10.20 am. The film lasted 1 hour 43 minutes. He then walked home on King's Road.

Linked

What do you notice about these numbers?
Show how you can link these numbers
For example 250 x 10 = 2500 $2500 \div 10 = 250$
Write all your answers down.

60

15 2

2500 6 30

3

5 500

250 25 50

180 10 100

Linked decimals

Link these numbers as you did in the last activity.
For example $1.6 \div 0.2 = 8$ and 0.2 x 8 = 1.6

1.6 2.4 0.2

0.6 4 9.6

0.3 1.2 0.18 10

12 0.8 0.24

8 6 7.2 1.2 3.6

2 48 0.16

Make up a link problem for someone in your house.
Would working back from the answer be helpful?

Number Investigation

In this investigation you can only use the following numbers:

2, 4, 5, 6

Can you make the numbers 1 to 20 by adding, subtracting, multiplying and dividing

You may only use a number once in each calculation.

1 6 - 5
2
3
4
5
6
7
8
9
10 5 x 2
11
12
13
14
15
16
17
18
19
20

My Number Is

300

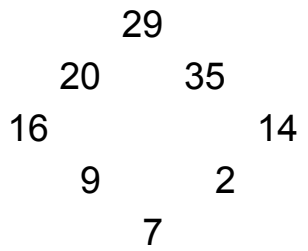
Make the number 300 in as many ways as you can including the suggestions below:

1. Use a double number or a double plus 1
2. Adding 2 numbers
3. Adding 3 numbers
4. Adding more than 5 numbers
5. Multiplying 2 or more numbers
6. Multiplying and then adding
7. Multiplying and then subtracting
8. Using division and then adding
9. Using a fraction
10. Using another different method

Now choose your own 3 or 4 digit number to make as many ways as you can.

Square Number Puzzle

In the circle of numbers below each adjoining pair adds to make a square number:



For example 29 + 35 = 64
35 + 14 = 49

Put the following numbers into a circle so that when you add all adjoining numbers they come to square numbers.

2, 3, 4, 5, 6, 11, 12, 13, 14, 19, 30, 34

Do the same with these numbers

1, 2, 3, 4, 5, 6, 10, 11, 12, 13, 14, 15, 19, 30, 34

Patterns on a Calculator

Use a calculator to work out the following patterns:
15873 x 2 x 7 = 22222
15873 x 3 x 7 =
15873 x 4 x 7 =
15873 x 5 x 7 =
15873 x 6 x 7 =
Keep going with this pattern. When is the first time it does not work?

Written Methods for the 4 Rules

Use written methods to solve the following problems

1. A holiday costs £315. How much will it cost for 7 people?
2. Alisha collects stamps. She has 1976 stamps altogether. She has 898 stamps in one album. How many stamps does she have in her other album?
3. Jemima has £3,875 in her bank account. How much will she have when her wages of £1,743 are paid in?
4. Six bottles of water have a capacity of 2100 ml. What is the capacity of 1 bottle?
5. How many weeks are 294 days?
6. Alex has read 321 pages of a book that has 600 pages. How many more pages does he have to read?
7. Roxanna earns £12 an hour. How much money will she earn in 35 hours?
8. 16,876 spectators watch a football match on Saturday and 13,865 watch the same team on Wednesday. What was the total attendance for both matches?

One Million

1,000,000

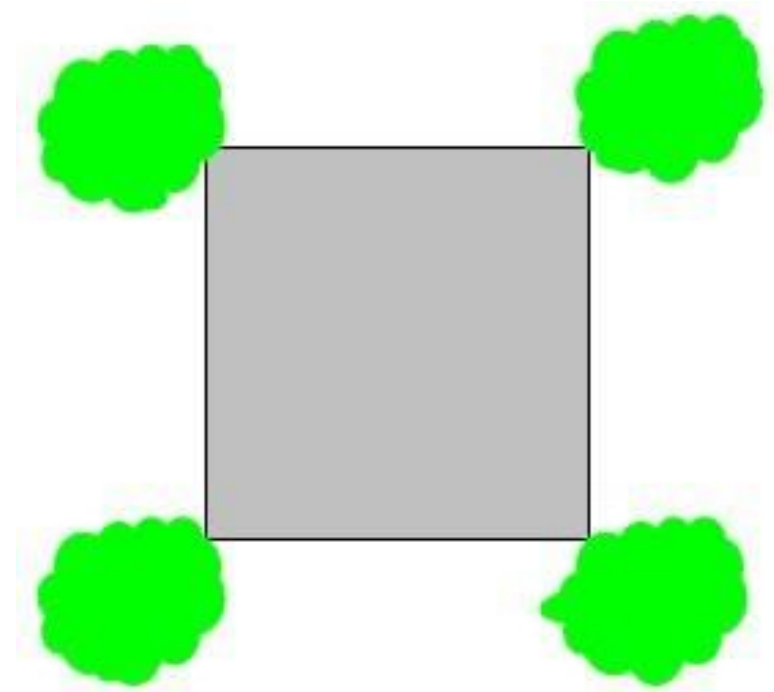
Have you lived for 1,000,000 minutes?

How long would it take to count to 1,000,000?

If you walk 1,000,000 steps how far would you walk? Where would you be if you walk from your home?

Expanding Car Park

Harry and Charlie own a car park. They want to make the car park twice the size. However, they want to keep it a square car park and to keep as many trees as possible to preserve the environment.
Can you find the best solution?



All answers can be found on website
www.summer-maths-activities-challenge.com
If you have enjoyed working through this book there are other books available on the above website or checkout some of the maths websites listed below:

happysoft.org.uk/countdown/numgame.php

Useful Maths websites for Primary School
https://mathsticks.com/my/