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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 during the school holidays. 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.

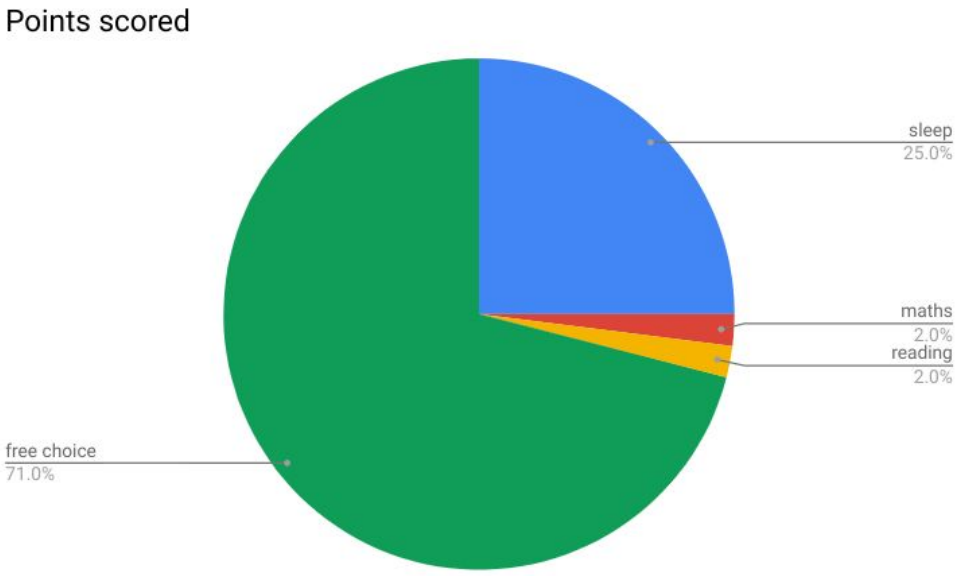
The Summer Maths Activities Challenge invites and supports the parent to fill the role of teacher during the summer holidays. Indeed ongoing parental input is vital to ensure that the process of learning is an enjoyable experience for the learner. This may seem like a scary prospect for some, however, 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.



<u>How you can help your child with Maths this summer</u>

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

Make 1000

In this game, you will need 3 dice.

You can play by yourself or with friends.

Throw the 3 dice and make a 3 digit number with the numbers thrown.

Your partner does the same.

Each person throws the 3 dice again and makes a second 3 digit number.

Each player adds up their two 3 digit numbers and the person closest to 1,000 is the winner of that game.

Play until one of you wins 10 games.

Card Trick

Laura has 8 cards that are all different.
There is one number from 1-8 on each card.
Laura has chosen 4 cards that add up to 20.
What are they?
Can you find all 7 solutions?
What would your answers be if Laura has 3 cards adding up to 15?

Football Open Day

Evan, James, Torrin and Thomas go along to their local Football Club Open Day. The fans watch the team train. The players sign autographs and there are lots of stalls to try out.

1. Player Stuart Last signs 178 shirts, 73 footballs and 229 autograph books. How many signatures does he sign?

2. The signing session lasts for 2 hours. How many times does Stuart Last sign per minute?

3. Stuart's squad number is a prime number less than 20 and the digits add up to 10. What is his number?

4. Over the training session, the 22 players run an average of 4 km per player. How many km does the whole squad run?

5. The club shows off their new signings. It paid £275,000, £360,000 and £2.1 million for new players. How much did the club pay in total for new players?

6. 3,659 people watch the training session. They sit in a stand that holds 5,000 supporters. How many empty seats are there?

7. Evan has a go on a stall that records the power of his shot, which is ⅓ as powerful as Stuart Last, who recorded 63 mph. How strong is Evan's shot?

8. The players run around the perimeter of the pitch 5 times. The length of the pitch is 100 m and the width is 65 m. How far will the players run?

9. A season ticket costs £150. How much money will fans save if it costs £9 per match for a 22 match season?

The Money Game

Play this game with your family or friends.

You will need 2 dice. Take it in turns to throw both dice. Add up your score and look to see if you have gained or lost money. Each player starts with £5. Keep a running total.

If you throw

2 = You find £2 coin on your bedroom floor

3 = You buy a comic for 90p

4 = It's your birthday you get £5

5 = You lend a friend £1.50

6 = You have a hole in your pocket and lose £2.40

7 = You get your pocket money £2.50

8 = You buy some sweets £1.10

9 = You drop 75p

10 = You sell a book and gain £1.80

11 = The tooth fairy leaves £1

12 = You win £2 on the lottery

Have 10 throws each or play until one of you has a total of £20.

5 in a Row

Play this game with a friend or family member.
It is a game for 2 players and you will need some counters. Each player needs to choose a colour.

7	45	36	56	27	64
10	70	35	49	2	25
63	32	16	9	72	100
5	18	21	90	54	48
81	3	60	45	7	14
15	4	24	10	12	20
80	72	40	8	30	56

A	B
1	10
2	9
3	8
4	7
5	6
6	5
7	4
8	3
9	2
10	1

Take it in turns to choose a square on the board.
Then choose 2 numbers, one from each column, A and B, which you think when multiplied together will make the number in the square you have chosen.
If you are correct place one of your counters on that square.
The winner is the first player to get 4 in a row, vertically, horizontally or diagonally.

How is your Heart?

How many times does your heart beat per minute? hour? day? week?

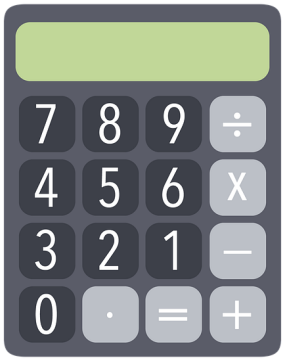
Faulty Keys

Some keys on a calculator are not working. In fact, the only 2 keys working are the numbers 5 and 7. The function keys are working (+, -, X, ÷).

Use only these keys to make all numbers from 1-20.

e.g To make the number 1

5 + 5 + 5 - 7 -7 = 1 or $5 \div 5 = 1$



Time challenge

Challenge your family to estimate 1 minute.
They have to close their eyes and open them again when they think 1 minute has passed.
See who can get the closest to 1 minute.

Can you make a gadget that times 1 minute exactly?
Does it work accurately every time you use it?

Revision Using Mental Strategies

1. What is the value of the underlined digit
   9,7̲86
   5̲,154
2. Write these numbers in order putting the smallest number first:
   3,330, 3,303, 3,333, 3,003
3. 2,965 + 100 =
4. Round 5,003 to the nearest 100.
5. How many degrees are there in 3 right angles?
6. 1500 - 700 =
7. 800 + 700 =
8. 1970 - 80 =
9. 3960 - 1300 =
10. 87 + 26 =
11. 321 - 67 =
12. 900 - = 270
13. X 11 = 132
14. 8 X 60 =
15. 490 ÷ 7 =
16. 360 ÷ 4 =
17. 120 X 6 =
18. 900 X 5 =
19. 240 ÷ 3 =
20. 100 X 11 =

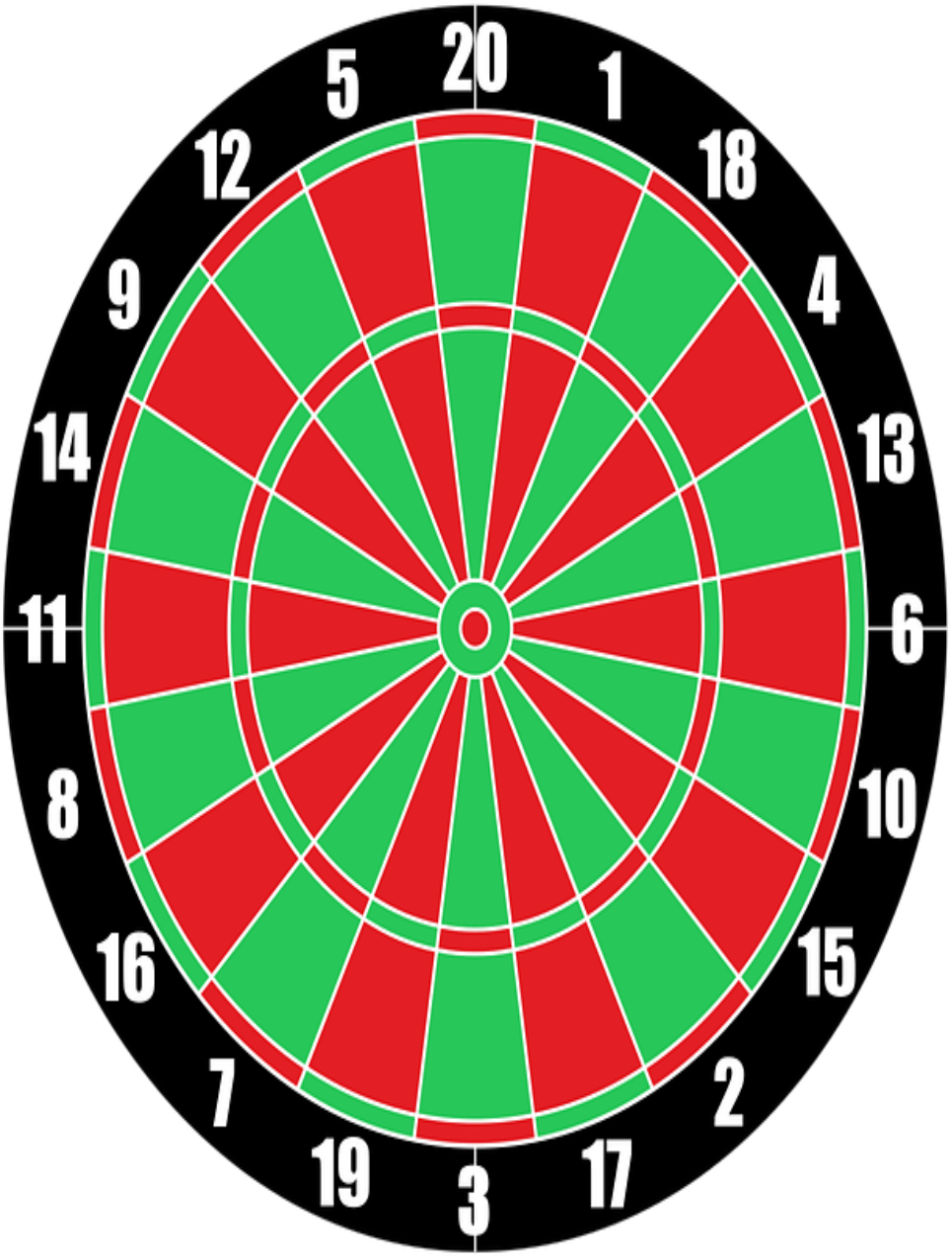
Reversing Numbers

Take any 2 digit number. Reverse the digits to make another 2 digit number. Add the 2 numbers together.

34/43 61/ 16 28/82

Do this for 10 numbers. What do you notice about the 2 digit numbers?
How many 3 digit numbers did you get?
Repeat for 10 more numbers can you make all the answers 2 digits?

Dice Darts



A game for 2 players. Throw a dice onto the picture of the dart board. Multiply the number shown on the dice by the number it lands on. Keep a record of the scores.
The first player to reach 400 is the winner.
Alternatively, start at 500 and subtract your scores to see who reaches 0 first.

Adventure Day

Organize an activity day.
There are 5 hours to fill with activities.
Your budget for the day is £40

Activity	Price	Length of time
Abseiling	£6	For 1 hour
Archery	£2.50	Per 20 mins
Axe Throwing	£4	Per 30 mins
Canoeing	£7	For 1 hour
High Ropes	£10	For 1 hour
Horse Riding	£7.50	Per 30 mins
Land Yachting	£8	For 1 hour
Playground	Free	Anytime
Raft Building	£9	For 1 hour
Rock Climbing	£4	Per 30 mins
Sailboarding	£3	Per 20 mins

Make a timetable of activities you will do and the amount of time you will spend on each one.
Do you have any change from £40?
Is it possible to have a go at every activity?

Anagram Maths

Anagrams are words that have had their letters mixed up e.g
ALETRING unjumbled becomes TRIANGLE
Can you find the Mathematical words in the following anagrams:

ENEV =

YCTACITPA =

EVNN IADMGRA =

RUODINGN =

RAB HRTCA =

IRHTG GALEN =

SUREQA PRAMIDY =

CAOTGON =

AARE =

UTBOES =

ATCFNOIR =

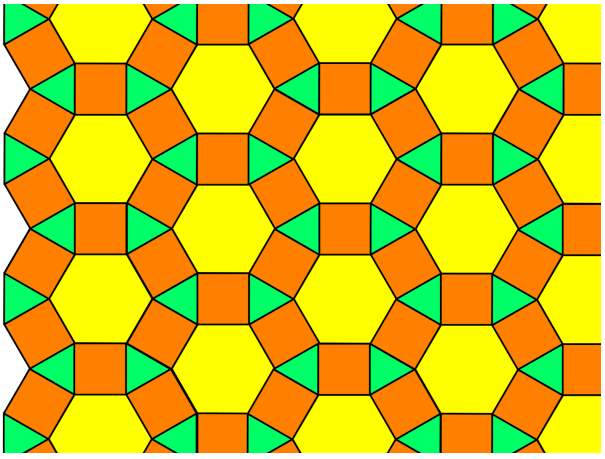
EIMCDLA ONPTI =

ERMEERPTI =

Make up another 8 Mathematical anagrams and see if your family or friends can solve them.

Tessellations

A Tessellation is a repeating pattern. Make your own tessellation pattern similar to the pattern below.



https://www.youtube.com/watch?v=GtG4Jnbpomk
Watch the youtube video to get started on your tessellation pattern.

Riddle Page

1. 5 children eat lunch. Anna finishes before Bobby but behind Charlie. Dhruv finishes before Edward, but behind Bobby. Write the order in which the children finish the meal, first to last.
2. Using only addition, how can you add eight 8's to make 1,000?
3. What do Maths teachers like to eat for lunch?
4. What 3 positive numbers give the same result if you add or multiply them?

Go Karting

Ethan, Bea, Tyler and Sophie go to their nearest Go Karting track.

1. They buy three 10 lap races. Each race cost £5. How much is the bill for all 4 children?
2. Each lap is 230 m. How far is a 10 lap race?

In the first race the times are as follows:

Ethan: 6 mins 27 secs
Bea: 5 mins 58 sec
Tyler: 6 mins 12 sec
Sophie: 6 mins 17 sec

3 Write down the finishing order.

4 What was the time difference between the winner and fourth place?

5 Work out how long each person took to complete 1 lap.

6 In the second race Sophie improves by 42 seconds, but still loses to Bea by 5 seconds. What is Bea's new time?

7. A go-kart uses 20 mls of fuel per lap. How much fuel would a go-kart use on a 10 lap race? Give your answer in mls and litres.

Money Exchange

Esme goes to a bank and changes a £5 note for coins.
Find 20 different combinations of coins Esme could be given.

What is the smallest number of coins she could receive?
What is the largest number of coins she could receive?

Magic Maths

Write down a 3 digit number

eg. 712

Write all the possible 2 digit numbers you can make

eg. 71 + 72 + 17 + 12 + 27 + 21 = 220

Add the digits in the 3 digit number

eg. 7 + 1 + 2 = 10

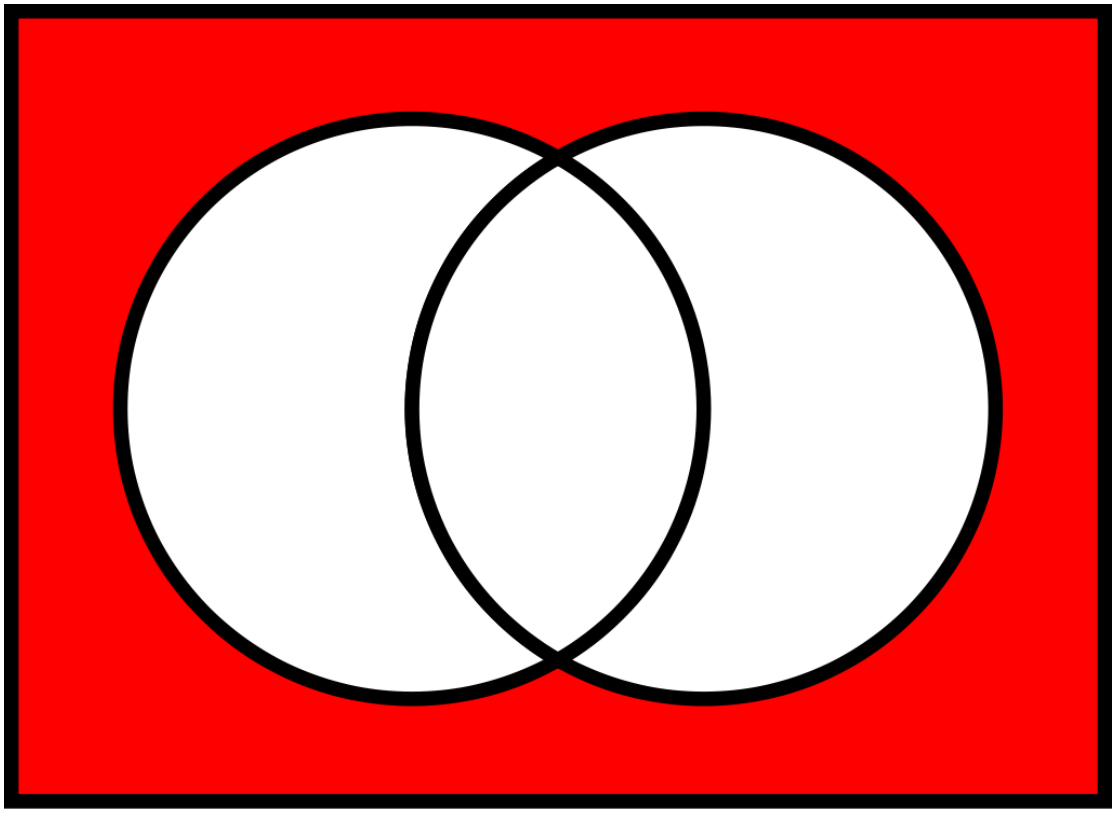
Divide the 2 numbers eg. $220 \div 10 = 22$

Try this with other 3 digit numbers. What do you notice?

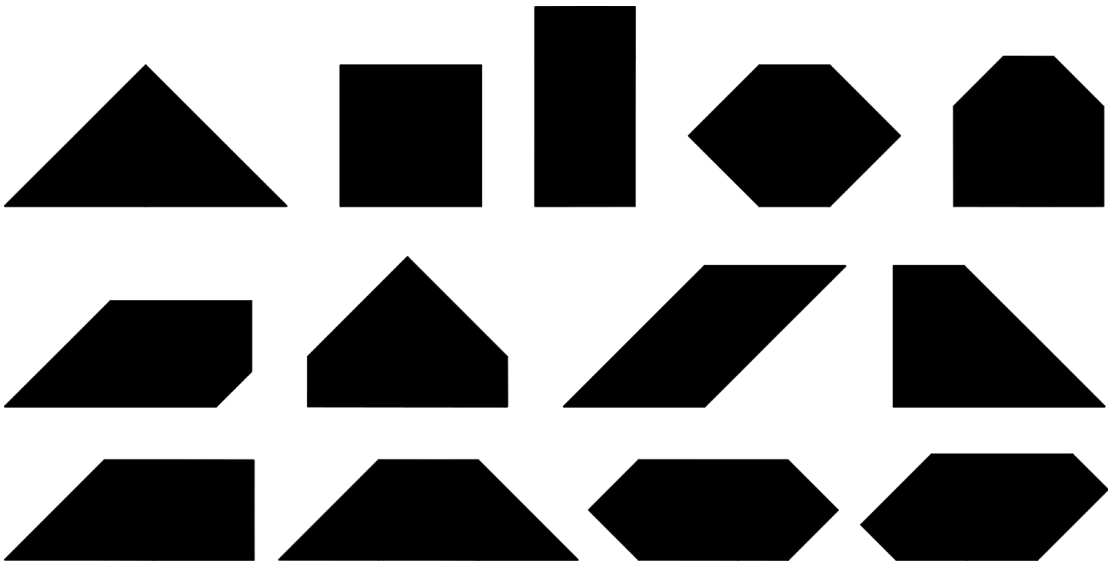
Mental Arithmetic Revision

1. 2055 + 10 =
2. 17 x 10 =
3. 4.55m = cm
4. 87 - 69 =
5. Double 49 =
6. How many hours in 2 days
7. 130 + 120 + 30 =
8. 42 ÷ 7 =
9. How many mls in ½ l
10. ⅕ of £2 =
11. 16 + 15 + 14 =
12. Round 695 to the nearest 10
13. 151 - 12 =
14. 1004p = £
15. £5 - £2.85 =
16. 1200 ÷ 100 =
17. How much change do I receive from a £5 note if I spend £1.21?
18. How many edges does a square pyramid have?
19. 3 ½ m = cm
20. 7 x 70 =
21. 423 + = 500
22. 70 + 50 + 40 =
23. 6.75 litres = mls
24. Is 42 a multiple of 3?
25. A packet of crisps costs Oliver 55p. How much will 3 packets cost?
26. Double 38
27. What is the perimeter of a square with sides of 8 cm?
28. Richard is facing SW he then turns through 2 right angles clockwise. Which direction is he facing now?
29. 15 x 6 =
30. Write 3 odd numbers larger than 40 that are also multiples of 5.

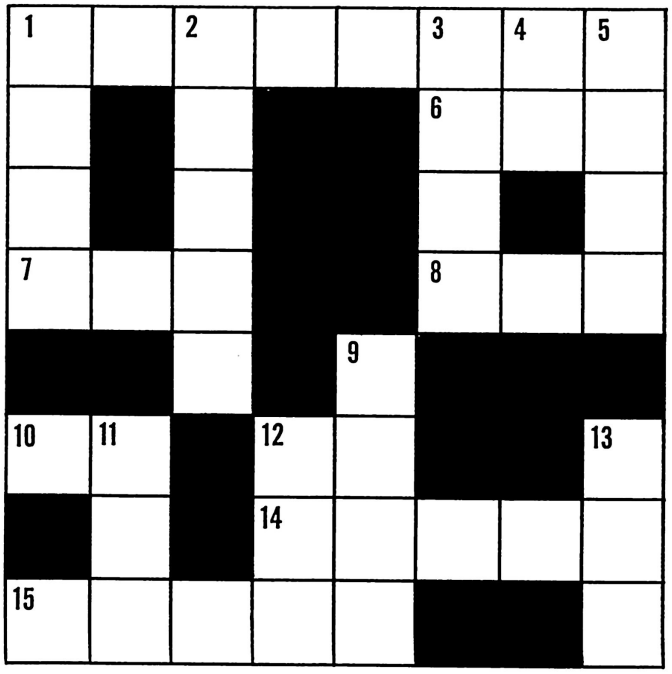
Venn Diagrams



In the first circle of the Venn diagram place quadrilateral shapes.
In the second circle place shapes with at least 1 right angle.
Place each shape in the correct area of the Venn diagram.
A shape that does not fit in a circle can go on the red border.
How many shapes are there in the middle section of the Venn diagram?



Crossword Puzzle



Across

1. Write twelve million three hundred and sixty seven.
6. ¼ of 1000
7. 399 + 398
8. 25 x 20
10. 90 ÷ 6
12. 65 ÷ 5
14. 20,000 - 7,500
15. 654 x 100

Down

1. 808 + 219
2. 04444 + 03333
3. 2076 + 1179
4. 100 - 35
5. 350 x 20
9. 756 + 564
11. 52 x 2
12. 11 x 10
13. 320 + 280

Farm Park Trip

Eva, Tilda, James and Emilia visit their local Farm Park.

1. The entry fee costs £4.50 per person. How much entrance fee did all 4 children pay?
2. In the first field, there are 6 donkeys, 8 horses and 7 goats. How many legs do the children count on all the animals?
3. They then visit the baby lamb pen. Each lamb weighs a different weight.

   The first and second lambs weigh 9 kg together
   The second and third lambs weigh 15 kg together
   The first and third lambs weigh 14 kg
   Work out the weight of each lamb.
4. In the reindeer enclosure, there are 5 reindeer. Each needs 20 kg of hay each week. How much hay will all the reindeer need for 2 weeks?
5. The pig pen is a perfect square. One side is 30 m. How much fencing do you need to fence the whole pen?
6. It takes 2 hours and 45 mins to go around the park. What time will the children finish if they start at 9.45 am?
7. In the butterfly house they keep a record of the butterflies they see:

Type		Total
Red Admiral	IIIIIIII	
Cabbage White	IIIIIIIIIIII	
Adonis Blue	II	
Marbled White	IIII	
Painted Lady	IIIIIII	

Could they record their results using a better method?
Draw a graph showing their results.

Look for butterflies in your garden or a nearby park. Use the butterfly identification aid below to help you. Why not take part in the Big Butterfly Count this year!

Image copyrightPAImage captionThe Big Butterfly Count takes place between 20 July and 12 August

https://www.bbc.co.uk/news/av/world-46641619/who-influenced-your-life-in-2018

Written Problems

Use written methods for addition, subtraction, multiplication and division to work out the answers to the following questions.

1. A cup holds 65 mls. How much would 7 cups hold?
2. How many 5p coins are there in £9.50?
3. Elliot buys a fishing rod costing £23.50 and a reel costing £9.50 less. How much does the reel cost?
4. In a cafe, Isabella buys a glass of squash costing £1.20, a slice of cake for £1.55 and a burger for £3.99. How much did she spend?
5. How much change did Isabella get from a £10 note?
6. A ticket to a theme park costs £16 for an adult and £9.50 for a child. How much money would you save if you bought a family ticket for £45 which admits 2 adults and 2 children?

7. A golf ball costs 85p. How much would 12 cost?
8. Violet's dog Ruby weighs 23kg. She then puts on 2800g over the next year. How much does she weigh now?

Lucky Dip

1. 627 people attend a football match. That is 293 fewer than the previous week. How many spectators attended last week?

2. One length of a swimming pool is 30 m. George swims 5 lengths. How many more lengths does he need to swim to complete 600 m?

3. A film starts at 7.15 pm and is 100 minutes long. What time does it finish?

4. On sports day Maya jumps 2 m 12 cm. The winning jump is 2 m 53 cm. How much further did Maya need to jump to win the competition?

5. There are 964 books in the library. If 194 books have been borrowed how many books are left in the library?

6. Tickets for the zoo cost £8.50 per adult and are half price for children. How much would tickets cost for 2 adults and 2 children?

7. There are 170 pupils in a school. How many teams of 5 can you make?

8. Teddy buys 4 sandwiches that cost 80p each. How much change would he receive from a £5 note?

9. Write down all the words you know that mean subtraction.

10. A fifth of a cake weighs 105 g. How much does the whole cake weigh?

11. A candle is 74 cm tall, it burns down 28 cm. How tall is the candle now?

Decimal Challenge

2, 5, 6, 7

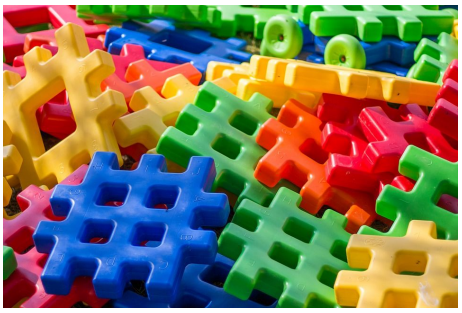
Only using the above numbers make as many 4 digit numbers as you can with 2 decimal places. The first 2 have been done for you:

25.67

25.76

Garage Sale

Amelie, Zakir, Yezel, Dhruv, Lucy and Sofia decide to clear out their bedrooms and find toys and items to sell at a charity garage sale.



They sell the toy cars for £7.50; the elephant for £3.50; the big car for £11.75; the connecting bricks for £2.35; the Minion for £2.90; and the pick-up truck for £4.20. How much do they make from selling these toys?

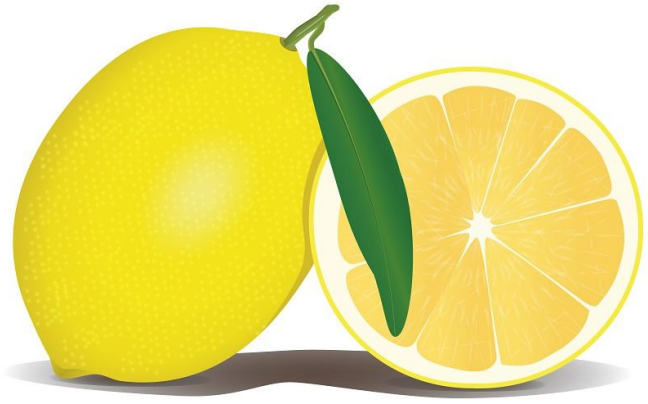
The children aim to make £50 from the garage sale. How much more money do they still need to raise?

Bella, Audrey and Mariam also want to help. So they decide to make some lemonade to sell.

Recipe for 1 litre of lemonade
3 peeled and chopped lemons
140 g of caster sugar
1l of water
Method
Pour the lemons, sugar and half water into a blender.
After blending sieve and add the rest of the water.

They plan to make 20 litres of lemonade
Make a list of ingredients they will need

They sell 250 mls of Lemonade for £1
How much money do they make if they sell all 20 litres?



How much money do they make from selling the toys and the lemonade together?

How much more money do they need to raise to make £200?
Organise a charity sale with toys and games you don't use anymore.
Which charity would you choose to donate your money to and why?

Budget and Cook a Meal for your Family

With the help of an adult plan and cook a family meal. The budget for the meal is £2.50 per person.
How much is the budget for a family of 4?
How much is the budget for a family of 6?
Get each member of the family to give you a mark out of 10 for the meal.
How healthy was the meal? Could you make healthier choices?

Swimming

Clementine and Sofia both use the same swimming pool. They both swim on Monday 1st July. Clementine swims every third day and Sofia swims every fifth day. What date will they both swim together again?

Car Journey Game

Play this game on your next car journey. The first person to see:

a white road sign gets 5 points

a sign with a red perimeter gets 15 points

a green road sign gets 25 points

a brown road sign gets 35 points

a blue road sign gets 45 points

Keep a running score and the first player to reach 500 is the winner.

Revision

1. What is the value of the underlined digits?
   9,1̲86
   8̲,194
2. Write these numbers in order of smallest first
   5,550, 5,505, 5,555, 5,005
3. 2,865 + 300 =
4. Round 4,503 to the nearest 100
5. How many degrees are there in 2 1/2 right angles?
6. 2100 - 400 =
7. 1200 + 800 =
8. 1690 - 80 =
9. 3460 - 1305 =
10. 182 + 59 =

A Fruit Problem

In my garden, I have an apple tree and a plum tree. For every 9 plums, I pick I collect 2 apples. I pick 36 plums. How many pieces of fruit did I collect altogether?

In a fruit salad to feed 10 people I use:
375g strawberries
160g grapes
650g bananas
175g kiwi fruit
150g blueberries
400g oranges
300g plums
What is the total weight of the fruit I use?
If the fruit salad is divided equally between 10 people what weight of fruit would each person receive?

2D Shape Collage

Using magazines or paper cut out any interesting 2D shapes. Stick them on paper to make a 2D collage.

Dream Holiday

Use the internet to plan a dream holiday for your family.
Where is your chosen destination?
How far away is it?
How will you get there?
How long will the journey take?
Where will you stay and how much will it cost?
Choose 3 great days out and work out the total cost.

Real Life Measuring Problems

1. A jug holds 500 mls of water. How many jugs would I need to fill a 4.5 litre bucket?
2. If a frog jumps 30 m in 3 minutes. How far would it jump in 30 minutes?
3. I can travel 20 km on 1 litre of fuel. How far will I travel on 12 litres of fuel?
4. I am travelling to the seaside, which is 12 km away. I travel 9 km by train and 2 km 250 m by bus. How far will I have to walk to get to the beach?
5. I buy 2 kg of firewood. I use ⅖ of it on the first day. How much firewood do I have left?
6. A swimming pool is 25 m long. How many lengths will it take to swim 1 km?

Magic Squares

Magic squares were probably discovered in 2200 BC by Emperor Yu!! The magic square rows, columns and diagonals all add up to the same number.

Only use the numbers 1-9 once in each magic square.

4		8
	5	

In this magic square, all numbers add up to 15

		6
4	9	

In this magic square, all numbers add up to 15

Make your own magic square that adds up to 15

Games afternoon

George, James, Bella and Audrey meet up to play snooker and darts.

In snooker
Red = 1
Yellow = 2
Green = 3
Brown = 4
Blue = 5
Pink = 6
Black = 7

Audrey and George pot 7 reds, 1 green, 2 browns, 2 blues and 2 blacks.

Bella and James pot 8 reds, 1 yellow, 1 blue, 2 pinks and 2 blacks

Add up their scores to see who is the winner.

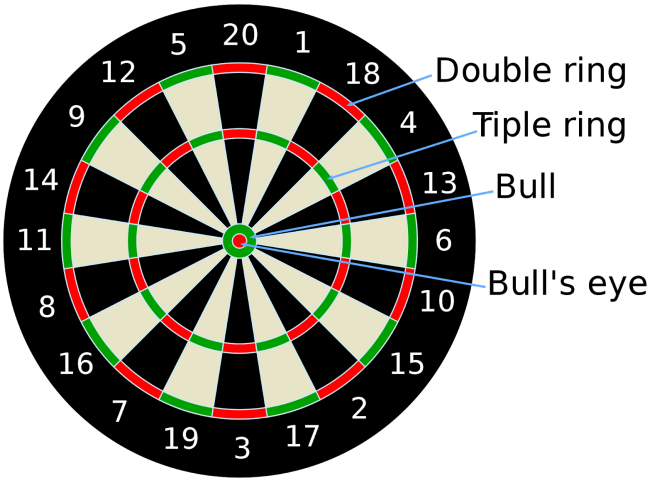
In snooker, if you pot the white ball your opponent gets 4 points. Who wins the game if Audrey and George pots 3 white balls and Bella and James pot 2 white balls?

What is the highest score you can achieve in a game of snooker? You would pot 15 reds, 16 blacks, 1 yellow, 1 green, 1 brown, 1 blue and 1 pink?

Darts

The children play darts and decide to mix up the teams. Audrey partners James and Bella partners George.
Both teams start at 301 and then take away their scores from the total.
The first score has been completed. Players must finish the game with a double.
What double do they need to finish?

A and J scores	B and G scores
301 - 54 = 247	301 - 26 = 275
82	45
17	38
31	48
11	63
56	31
22	24



Find 20 ways of making 40 with 3 darts, you can use doubles and trebles

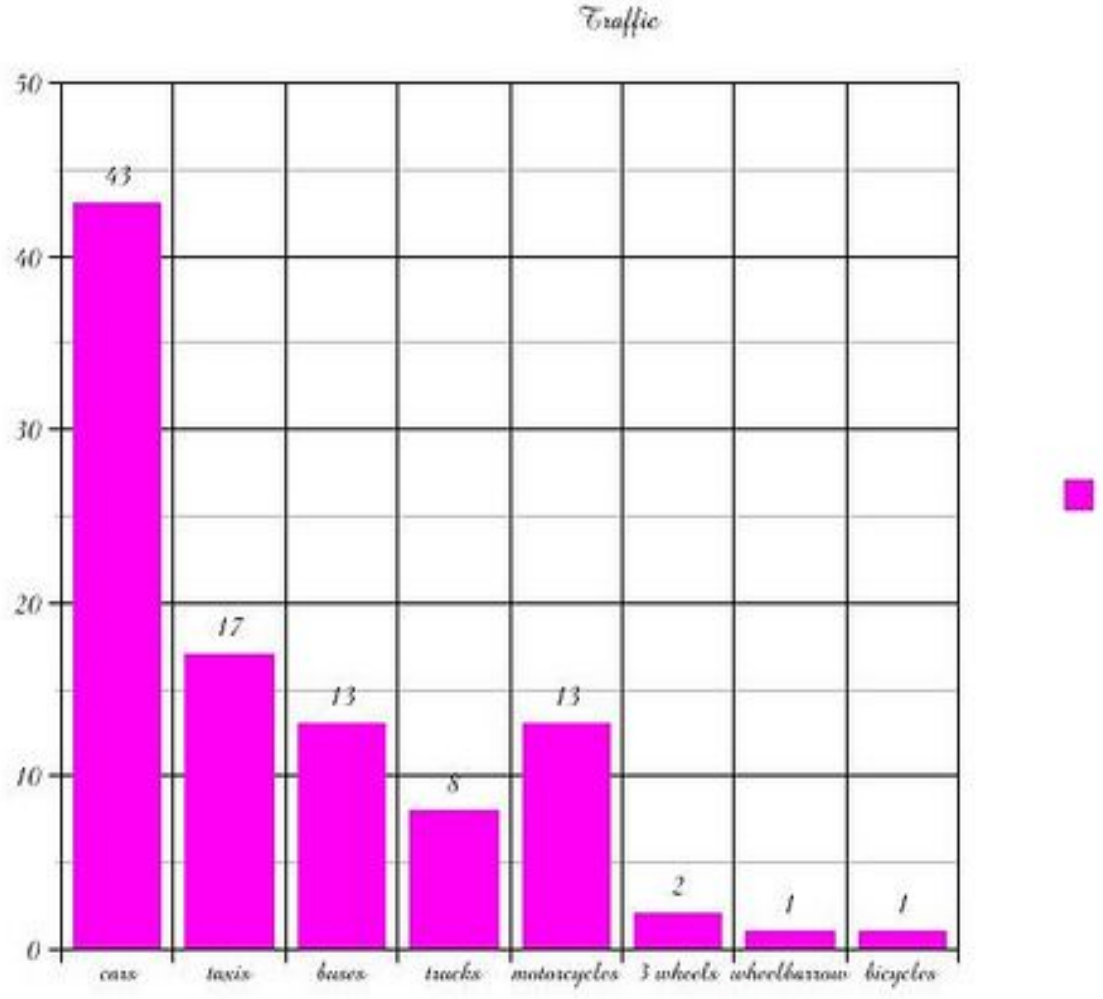
20 + 18 + 2 = 40
Double 5 + Triple 4 +18 = 40

Written Methods

1. 3270 + 1786 =
2. 4587 - 1199 =
3. 164 X 7 =
4. 780 X 9 =
5. 261 ÷ 3 =
6. 468 ÷ 6 =
7. The mileage of a car is 9,754. It is then driven for another 5,967 miles. What is the new mileage?
8. There are 3,666 runners in a marathon. How many male runners are there if there are 2,108 female runners?
9. Tickets for a show cost £9 each. How much is taken at the box office if 328 tickets are sold?
10. The perimeter of a square field is 828 m. What is the length of one side?
11. Sellers pay £6 per car to take part in a car boot sale. How much money is made if there are 285 cars?
12. A coach travels 96.9 miles. How much further must it go until it travels 100 miles?
13. A crowd of 45,678 watches Chelsea FC. This is 3,754 fewer spectators than the previous Saturday. How many spectators attended last Saturday?
14. A runner completes 3,215 metres of a 5 km race. How much further does she need to run?
15. There are 264 pupils in a school. The children need to be put into 4 houses. How many children are there in each house?
16. Charlie can complete 39 times table questions in 1 minute. How many questions will he answer in 7 minutes?
17. At a holiday camp, there are 45 caravans with 6 guests in each and 45 caravans with 4 guests in each. How many guests are staying at the holiday camp? (is there a quick way of answering this problem?)
18. In a sponsored swim a class swim 97 lengths. Each length is 25 m. How far did the class swim?

Traffic Survey

Look at the bar chart below. It shows the different types of vehicles that can be seen on a road.



Answer the following questions:

How many more cars are there than taxis?

If you add all the non-car vehicles together, does this add up to more than the number of cars?

How many vehicles were recorded in the survey?

Can you conduct your own traffic survey?

Work and plan with an adult on how many vehicles or length of time you will do your survey on and the best road to do it on.

DO YOUR SURVEY WITH AN ADULT.

Compare your results to the graph in the book.

What are the main similarities and differences?

Write a short report on the findings from your survey.

Time

A bus takes 35 minutes between stops.

1. Copy and complete the timetable.

Greenwich	2.00		
Applegrove		4.10	
Witnesham			7.20
Nacton			

2. A cake takes 1 hour 15 minutes to bake. What time will it be ready if you put it in the oven at 9.12 am?
3. An athlete is running for 95 minutes. If she starts at 6.05 pm at what time will she finish?
4. James has a piano exam in 8 days. He practises for 40 minutes each day. How long will he practise for his exam? Give your answer in minutes and also hours and minutes
5. Miriam takes a library book out on July 3rd. If the book is due back in 3 weeks when is the due date?
6. She does not return it until August 1st. How many days late is the book?
7. If she is fined 9p for each day it is overdue how much will she have to pay in fines?
8. Write the times you woke up yesterday morning and this morning. Then write the time you went to sleep yesterday evening. How long were you awake? How long were you asleep for?
9. Have you lived for more than 500 weeks?

Fractions and Decimals

1. ⅓ of 24 =
2. ⅘ of 35 =
3. 9/10 of a metre = cm
4. 5/100 of £700 =
5. ¾ - ¼ =
6. ⅘ + ⅖ =
7. Write 0.76 as a fraction
8. Write 1 ¼ as a decimal
9. Put these amounts of money in order smallest to largest
   £6.70, £ 7.70, £7.07, £6.77
10. 0.6 kg = g
11. Give 3 equivalent fractions that are equal to ¼
12. In Class 4D there are 28 children. Half go home for lunch and 1/7 have a packed lunch. How many stay for school lunch?
13. ⅙ of 18 =
14. Write ¾ as a decimal
15. ⅔ = /6
16. Simplify these fractions
    8/12, 9/21, 16/18, 20/35
17. Write these mixed numbers as decimals:
    5 1/10 6 ⅕,

Make a 100

Get an adult to make some large digit cards numbered 0-9 on A4 paper

Place them randomly on the floor.

Jump from one number to another adding as you go.

Add, subtract and multiply as you go to make 100.

Scrabble

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T
1	3	3	2	1	4	2	4	1	8	5	1	3	1	1	3	10	1	1	1

U	V	W	X	Y	Z
1	4	4	8	4	10

Workout how many points you would score in scrabble for the following words:

PEACHES
ZAPPED
HANDJAR
ZODIACS
YOGHURT
KEYCARD

Put them in order with the highest scorer first.

Work out how many points you would score for these Mathematical words:
SUBTRACT
MULTIPLY
ADDITION
DIVISION

Make words with the following letters. It is possible to make 7 letter words related to school?

R E E A C H T

S I N E C E I

L C S S S E A

E L I H G S N

<u>Find out the meaning of these number words</u>

Pent
Mega
Milli
Deca
Deci
Tri
Kilo
Giga
Centi
Bi
Googleplex

Find how these are used at the start of Mathematical words.

Number Sequences

Fill in the next 3 numbers of these number sequences

12, 18, 24, 30, __, __, __

100, 80, 60, 40, __, __, __

67, 77, 87, 97, __, __, __

17, 22, 27, 32, __, __, __

1, 2, 4, 8, __, __, __

84, 78, 72, 66, __, __, __

150, 125, 100, 75, __, __, __

⅛, ¼ , ⅜ ,½ , __, __, __

I , III , V , VII, __, __, __

-2, -4, -6, -8, __, __, __

500, 1,000, 1,500, ___, ___, ___

100,000, 10,000, 1,000, ___, ___, ___

0.6, 1.2, 1,8, 2.4, ___, ___, ___

__, __, 21, 28, 35, __, 49

Write 10 number sequences for someone in your family to solve.

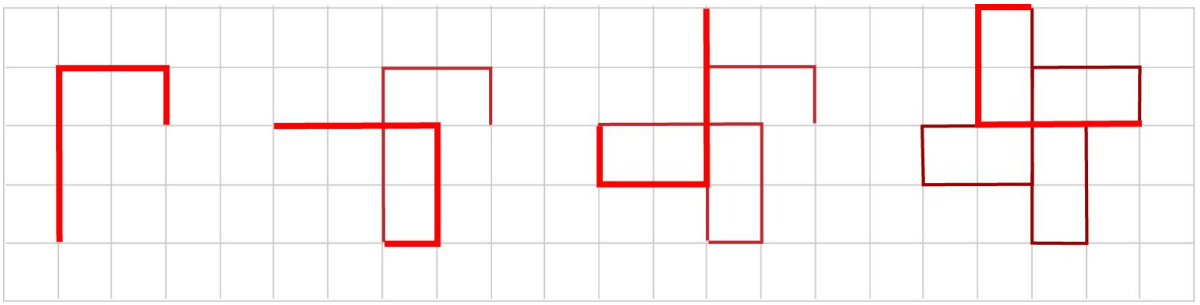
Spirolaterals

Spirolaterals are traced patterns. Imagine a slug is programmed with a set of instructions. The slug must always turn right after each movement. The slug must always face North or upwards on the paper at the start of the spirolateral.

The simplest form is 1,1,1,1 which makes a square.

Try the spirolateral 1,2,3 keep repeating the pattern and you end up with a pattern like this which is a closed pattern.

If you try 1,2,3,4 you will get an open pattern that you will have to stop when you get to the edge of the paper.



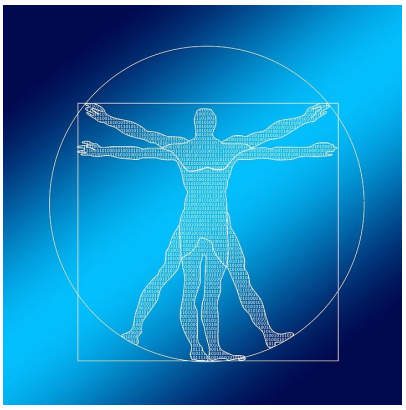
Try some of these spirolaterals

(1,2,4)
(1,4,1)
(1,6.3)
(2,3,1)
(1,3,3,5)
(2,4,6.6)
(2,2,3,4,4)
(2,4,6,8,10)

Make up your own spirolaterals

Vitruvian Man

This picture is a drawing by Leonardo Da Vinci, who lived in Italy. The picture was drawn in 1487. He drew it to show the proportions of the human body.
Here are some examples of what it represents:
The span of a person's arms is equal to their height.
The distance from the top of a person's head to the middle of their chest is one-quarter of their height.
The foot is one-sixth of their height
The measurement from the elbow to the fingertips is a quarter of their height
The hand is one-tenth of their height.

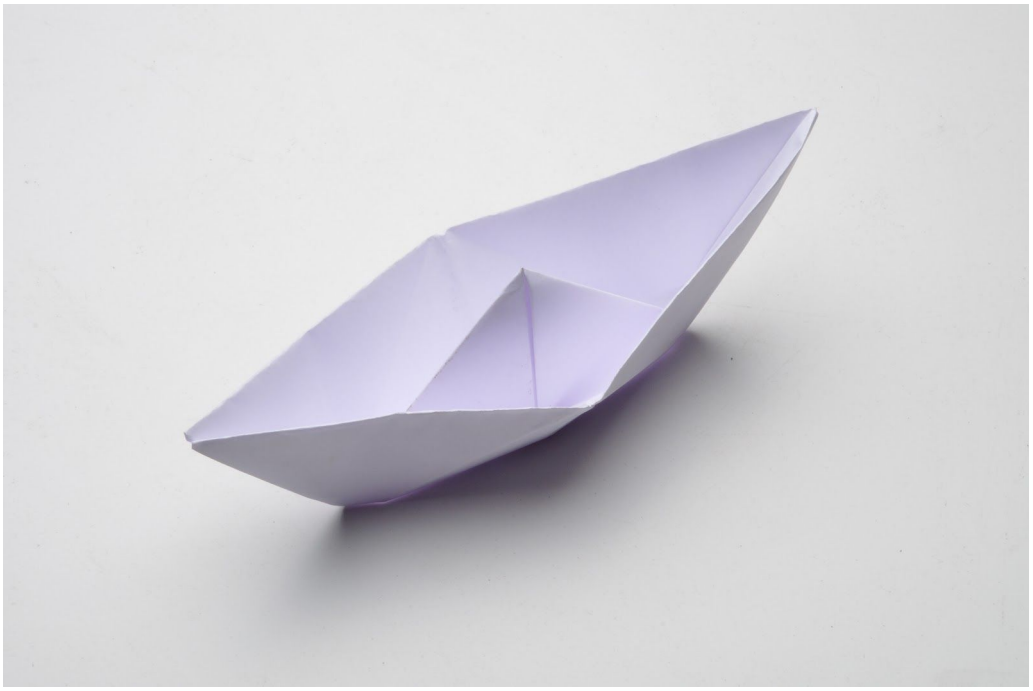


With the help of your family check out if Leonardo Da Vinci's proportion measurements are correct.
You will need a tape measure to take the measurements

Name	Arm Span cm	Height cm	Name	Foot cm x6	Height cm

Does anyone in your family have similar proportions to the Vitruvian man?
What conclusions can you draw about Leonardo's famous picture?

Paper Boat Challenge



Challenge a member of your family to make a boat that floats on water using just an A4 sheet of paper each.
Find how many marbles each boat will hold before it sinks.
Do both boats sink with the same number of marbles?

Cut an A4 sheet of paper in half and make another boat each. Do they hold the same number of marbles before they sink?

Can you draw any conclusions?

Perimeter

How many shapes can you draw with a perimeter of 12 cm?

The shapes do not have to be just rectangles. Find triangles, squares, hexagons or other shapes.

3 in a Row Multiplication

A game for 2 players.
The first player throws 2 dice and multiplies them together. They then find that number on the board and cover it with a counter. If there is no number available the second player throws the dice.
The winner is the first player to get 3 counters vertically, horizontally or diagonally in a row.

24	6	1	25	12	4	10	8
2	5	30	8	18	15	6	3
16	10	4	12	9	24	8	20
8	12	15	24	6	3	18	25
1	8	4	16	5	10	20	8
3	16	18	9	25	24	2	6
12	30	4	20	6	3	15	1
9	8	5	24	18	12	16	10
16	2	4	6	9	18	25	24
10	20	1	8	12	12	6	30

Des Lally

This is Des Lally from Brecon in Wales.
He has set himself a challenge to raise money for charity.
Using the internet, research Des to learn more about his challenge.

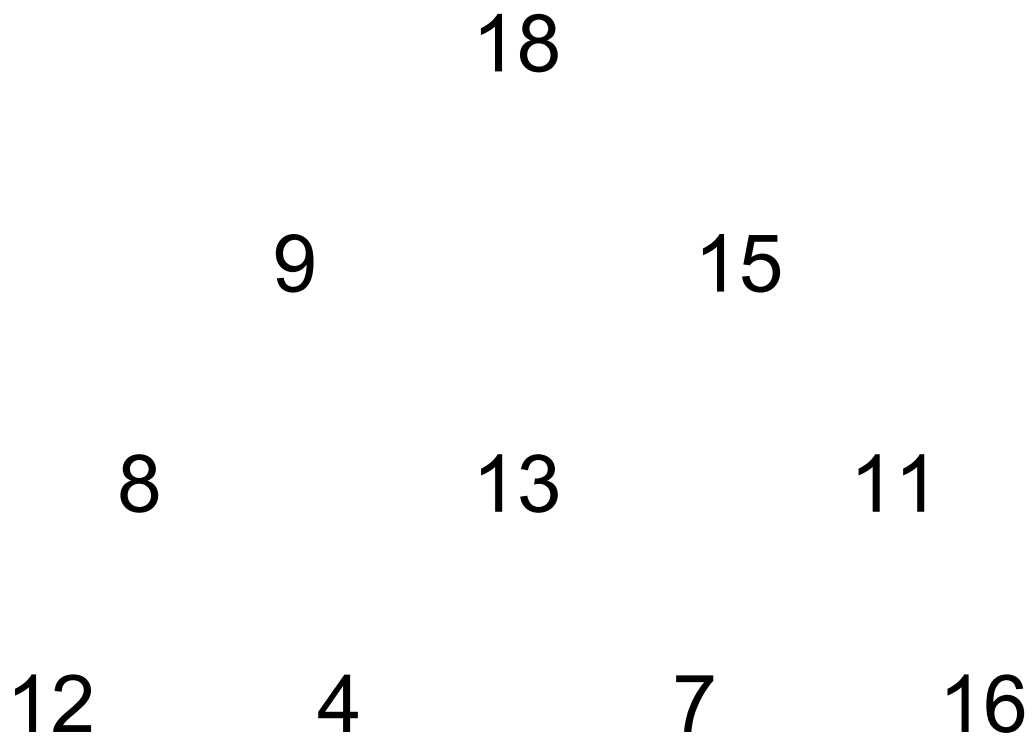
Tearful Des Lally ascends Pen y Fan for 365t

https://www.bbc.co.uk/news/uk-wales-47670316

Find 8 interesting facts about Des Lally.

Can you work out how far Des walks/runs to get to the end of his challenge?

Pyramid Dice Game



A game for 2 people. Use 3 dice.
Player 1 rolls the 3 dice and must use the numbers rolled to make a number on the bottom line of the pyramid, e.g if 6, 2 and 4 are rolled the player could put a counter on 7 or 16. This is because:
$6 \div 2 + 4 = 7$ and $6 \times 2 + 4 = 16$
All 3 numbers must be used in the sum.
Player 2 throws the dice. If they can not make any numbers on the bottom row player 1 has another go. Player 1 throws all 3 dice and attempts to make a number on row 2.
The first player to reach the top number of the pyramid is the winner.
Try playing again with different numbers on the pyramid.

Think of a number

Think of a number

Double it

Add 17

Subtract 3

Divide by 2

Subtract the number you first thought of

Try this with 5 different numbers. What do you find?

Think of a number

Multiply it by 3

Add 6

Multiply by 2

Add 6 again

Divide by 6

Subtract 3

Try this with 5 numbers. What do you find this time?

Answers for all the problems and questions in the book can be accessed at www.summer-maths-activities-challenge.com

If you have enjoyed the Summer Maths Activities Challenge why not check out some of the following websites for some great maths ideas

https://mathsticks.com/my/

Useful Maths websites for Primary School

Play countdown great for your mental maths

http://happysoft.org.uk/countdown/numgame.php