MATHS PUZZLE BOOK

= for keen puzzlers aged 9 to 105! =

Puzzles created or adapted by Douglas Buchanan

MATHS WEEK ENGLAND

MAKE 24

Using ALL four numbers write a number sentence where the result is 24.

You can only use the simple operations addition, multiplication, subtraction and division. You cannot use the numbers more than once

1	4	9	10	
3	4	6	12	
2	2	2	12	
2	5	8	10	
7	7	8	15	

CROSS NUMBERS

Using the values below the grids fill in the spaces to make the totals shown in the shaded squares

	x		12
÷		+	
	-		1
2		4	

1 2 3 4

	x		6
+		+	
	÷		4
7		3	

1 2 3 4

	÷		2
+		x	
	x		3
5		6	

1 2 3 4

	+		+		11
+		-		+	
	+		-		8
7		1		3	

1 2 3 4 5 6

	+		÷		5
-		x		-	
	+		+		9
1		12		1	

1 2 3 4 5 6

	+		+		7
+		x		x	
	+		-		4
7		6		20	

1 2 3 4 5 6

	+		÷		4
+		-		x	
	+		-		3
9		4		8	

1 2 3 4 5 6

ORDERING CARDS

By reading through the instructions put the numbers in the correct order.

Using playing cards or numbered cards will make it easier to solve. *None of the numbers are in their actual positions.* ***1 cannot be the first card, 2 cannot be the second card and so on.***

A: Cards 1 2 3 4

- The first and third cards add up to 5

B: Cards 1 2 3 4 5

- The first and second cards add up to 6
- The fourth and fifth cards equal 3 when multiplied together
- The 5 is two places away from the 5

C: Cards 1 2 3 4 5 6

- The second and third cards equal 10 when multiplied together
- The 1 is three places away from the 3 and to the left of 4

D: Cards 1 2 3 4 5 6 7

- The 6 is three places away from the 7 and 5 places away from the 5
- The fifth card is a multiple of the third card
- The 3 is five cards away from the 1
- The first and last cards equal 18 when multiplied together

E: Cards 1 2 3 4 5 6 7 8

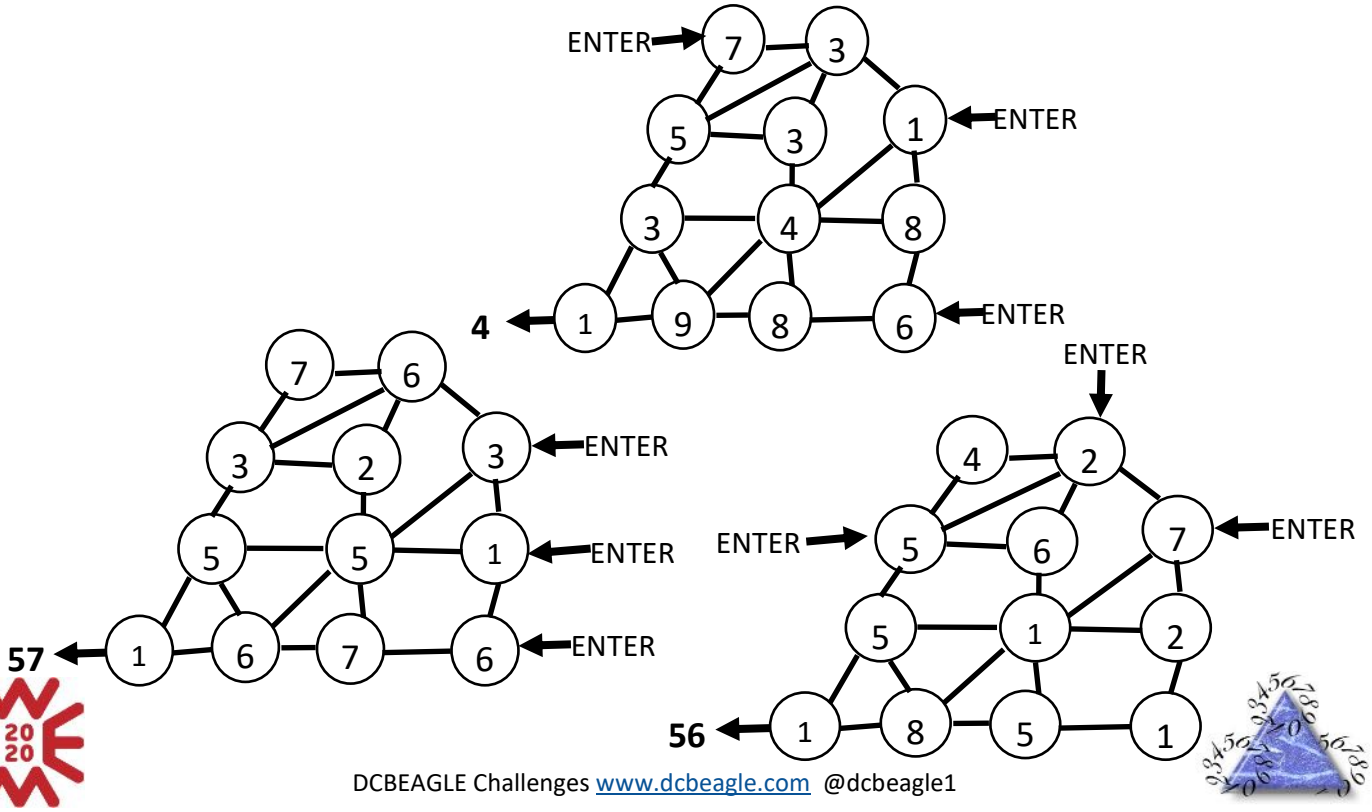
- The first, third and fourth cards are prime numbers
- The fifth and eighth cards are equal to the sixth card when multiplied together
- The third and sixth card add up to 15
- The second and fifth cards equal 12 when multiplied together

F: Cards 1 2 3 4 5 6 7 8 9

- The first and second cards add up to 16 with the smaller card being on the left
- The fifth and nineth cards equal 15 when multiplied together
- The 6 is on the right of the 1 but left of 3
- The fourth and seventh equals 24 when multiplied together
- The third and fifth add up to 4

BUBBLE MAZES

You have a choice of three entries into the maze. You can visit the bubbles only once. The aim is to make the total, by adding the digits, indicated when you reach the end.



FIVE BY FIVE

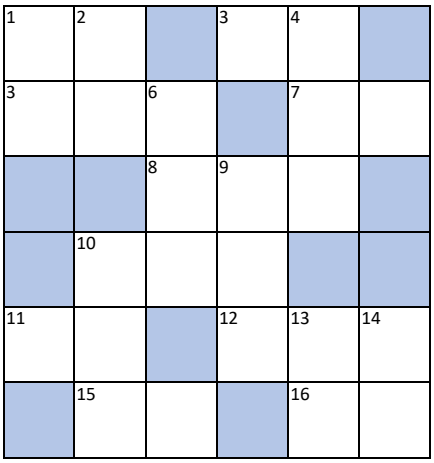
You have five 1s, five 2s, five 3s, five 4s, five 5s.

Place them in the grid so they are not repeated in any row, any column or the two long diagonals

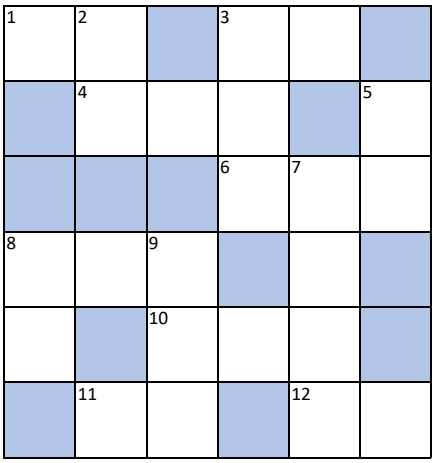
There is an answer on page 8. Check your pattern carefully and if it does not match the solution you may have another correct pattern

CONSECUTIVE NUMBERS

The clues are the total of the consecutive numbers e.g. 456. They may not be written in order e.g. 3456 could be written as 5346 or 3645 etc.



ACROSS		DOWN	
1	5	**1**	3
3	5	**2**	5
5	6	**4**	9
7	9	**6**	6
8	6	**9**	12
10	12	10	12
11	11	13	7
12	12	14	9
15	7		
16	9		



ACROSS		DOWN	
1	9	**2**	9
3	3	3	6
4	9	5	7
6	12	7	18
8	12	8	5
10	18	9	12
11	5		
12	9		

COUNTING DOWN!

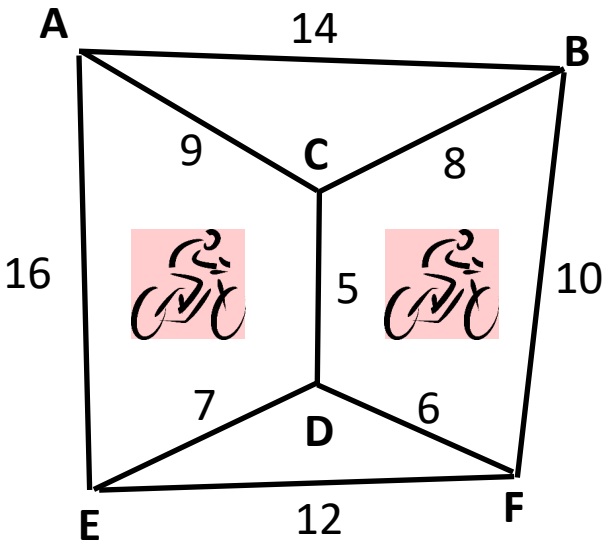
Make the total on the right - you do not have to use all the numbers.

You can only use the operations addition, multiplication, subtraction and division.

	25	7	4	6	3	9	222
Ans:							
	75	3	2	5	7	8	167
Ans:							
	50	3	1	4	6	7	442
Ans:							
	100	4	1	9	1	5	437
Ans:							
	25	1	4	3	4	7	262
Ans:							

CURLY'S CYCLING FRIENDS

Work out the route Curly's friends made by adding the distances from the start to the destination. If the total from A to F is 24 then Curly must have gone A~B~F



Ann	B			A			38km
Bill	A				D		33km
Carol	D				B		40km
Dave	F					B	46km
Erin	C					B	48km

LETTERED DICE

Each face on the 4 dice has a different letter on it. By rearranging them you can make the following words. Work out which letter belongs to which dice

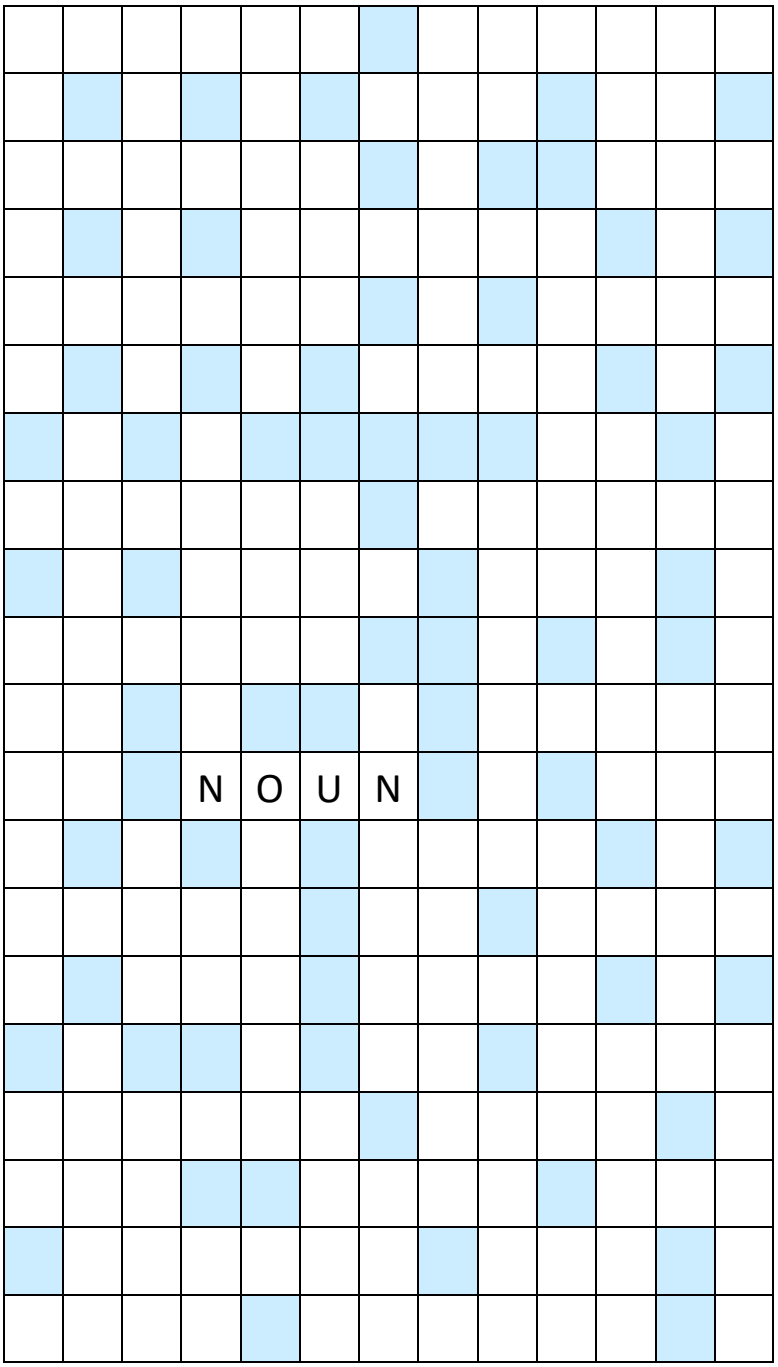
BONE	CATS	COAT	CORN
FIVE	FOUR	FROG	GOAT
GROW	HIVE	ICON	JACK
JAKE	JAYS	KATE	LATE
LEFT	MOAT	MOTH	NOTE
PINE	QUIP	QUOD	RACK
TONE	No x or z		

DICE 1	DICE 2	DICE 3	DICE 4
A	A	A	A
B	B	B	B
C	C	C	C
D	D	D	D
E	E	E	E
F	F	F	F
G	G	G	G
H	H	H	H
I	I	I	I
J	J	J	J
K	K	K	K
L	L	L	L
M	M	M	M
N	N	N	N
O	O	O	O
P	P	P	P
Q	Q	Q	Q
R	R	R	R
S	S	S	S
T	T	T	T
U	U	U	U
V	V	V	V
W	W	W	W
Y	Y	Y	Y

DICE 1	DICE 2	DICE 3	DICE 4

FILL IT IN!

With the exception of one, all the words have been removed from this crossword. The aim is to return all the data to make a complete version



AN	APE	SIR	AIRY	REAP	BELLE	AMENDS	LEGMEN	ROUNDS
AT	ASS	SON	ASPS	SEAT	BRERS	ARROWS	LISTEN	SCROLL
AW	DOL	NEE	AUNT	SLAP	SALAS	CREASE	OUTLAW	SEPALS
EM	EGO	TEN	AUTO	USED	TOAST	DASHES	PEPPER	SNEEZE
EM	EWE	TOR	DUST	ZEAL		EASELS	PLUNGE	TAPPED
EN	PAD		EATS			EMPIRE	POWDER	TONGUE
HE	PEA		LESS			FAINTS	QUARTS	TORCH
IS	POW		NOUN			FRYING	QUESTS	UTTER
WE	SAG		PETS			GORGED	RABBIT	
						LEDGES	RAGBAG	

FIND THE FIVE DIGITS

Look for the fifteen five-digit numbers in the grid below.

The numbers can be written horizontally, vertically or diagonally

13247 14232 15693 23549 25946 34324 38926 44217 45619 48225
49614 51272 57918 62898 69158 71317 74251 85494 93513 98322

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

HIDDEN WORDS

In each line of letters there are three hidden words. Find them.

Oceans A A A A C C C D F I I I I I L N N N P T T

Countries A A A C E F G I L N N O P P R R S T U

Sports A B C E E F H I K L L N N O O O S T T Y

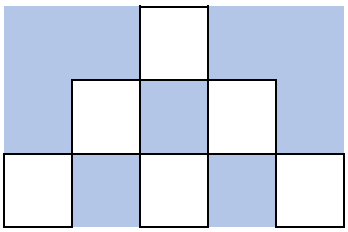
Fruits A A A C C E E E G I I N N N O O P R R R T T

Shapes A A B C D E E G H I L M M N O P R R S T T U Y

CONNECTING PYRAMIDS

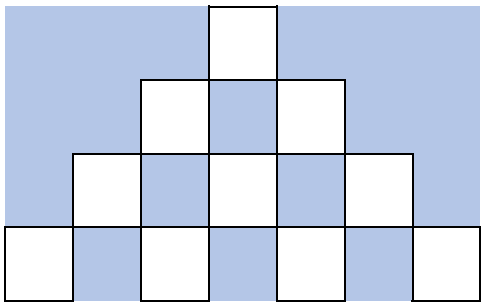
Place the numbers in each pyramid
so when you add or subtract two numbers the result above them is correct.
The sums must read from left to right. E.g. 9 - 8 = 1

A



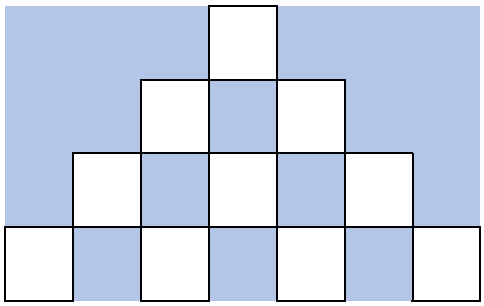
1 2 3 3 5 8

B



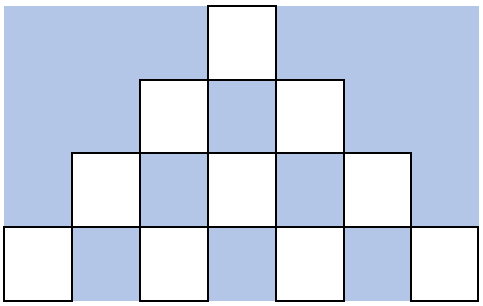
1 1 1 2 2 2 3 3 3 5

C



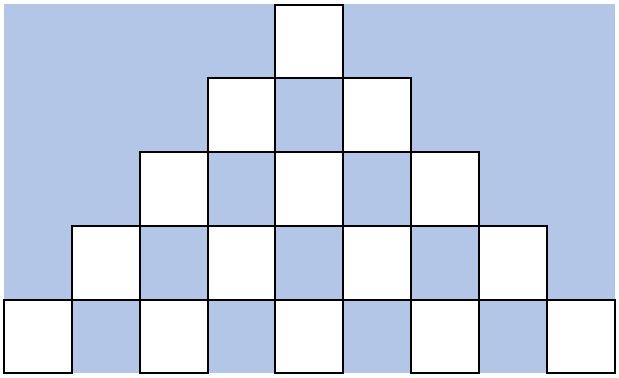
1 2 2 3 4 4 5 6 9 15

D



1 2 2 2 3 3 4 4 5 7

E



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

SOLUTIONS

COUNTING DOWN AND MAKE 24: there are many combinations. Ask somebody to check them or use a calculator **CROSS NUMBERS**: 43,21; 32, 41; 42,13; 362,451; 642,531; 124,635;352,614 **ORDERING CARDS**: 4312 / 24513 / 352164 / 6327451 / 36752814 / 791638425 **BUBBLE MAZES**: 1,8,6,8,4,9,3,10; 10,6,7,5,3,6,2,3,5,10; 2,6,10,7,2,1,5,8,5,10 **CURLY CYCLING**: BFEA, ACBFD, DEAC, FDEACB, CAEDFB **LETTERED DICE**: BDIJRT, KLOPSV, AFHNQW, CEGMUY HIDDEN WORDS: France, Portugal, Spain; football, hockey, tennis; apricot, nectarine, orange; pyramid, rectangle, rhombus; Atlantic, Indian, Pacific

FIVE BY FIVE

A	B	C	D	E
D	E	A	B	C
B	C	D	E	A
E	A	B	C	D
C	D	E	A	B

CONSECUTIVE NUMBERS

2	3		2	3			4	5		1	2	
1	2	3		4	5			4	3	2		3
		1	3	2						3	5	4
	3	2	4				3	5	4		3	
6	5		5	3	4		2		5	7	6	
	4	3		4	5			2	3		4	5

CONNECTING PYRAMIDS