THE BRITISH SCHOOL
OF BEIJING, SHUNYI
A NORD ANGLIA EDUCATION SCHOOL

Maths Summer Challenge

How many of the challenges can you complete over the Summer?

Colour in the number of the challenge when you have completed it.

You will need to show your evidence – you could show your working out or take a photograph or video of what you have done.

Please bring all of your work to school with you next term and hand it in to Ms Debs.

You will then be entered in to a lucky draw.

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

Challenge 1

Colour in the square

You need 25 tiles, counters or cubes - 5 each of 5 colours.

First, try to put the 25 coloured tiles or cubes into the 5 x 5 square so that no column and no row have the same colour in them more than once.

Now try the same problem so that no diagonal lines have the same colour either - so no row, column or diagonal can have the same colour more than once.

Challenge 2

What number am I?

I am less than 25 x 10 and greater than 22 x 10.

I am a multiple of 5.

I am odd.

The sum of my digits is 10.

Challenge 3

Number Puzzles

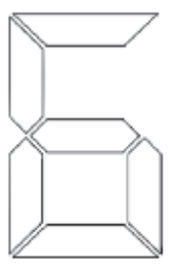
Amazing Fact

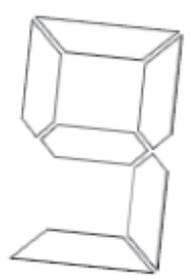
If you take any number, double it, add 10, divide by 2 and subtract your original number, the answer will always be 5.

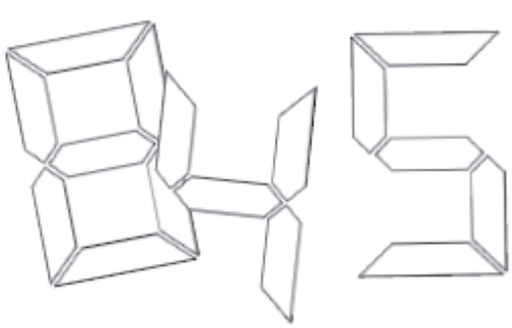
Challenge

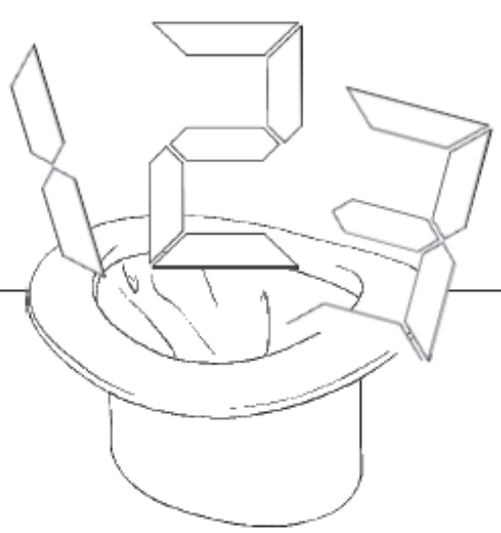
See if this is true.

1. Double 5 = ☐ + 10 = ☐ ÷ 2 = ☐ – 5 = ☐
2. Double 7 = ☐ + 10 = ☐ ÷ 2 = ☐ – 7 = ☐
3. Double 3 = ☐ + 10 = ☐ ÷ 2 = ☐ – 3 = ☐
4. Double 9 = ☐ + 10 = ☐ ÷ 2 = ☐ – 9 = ☐
5. Double 4 = ☐ + 10 = ☐ ÷ 2 = ☐ – 4 = ☐
6. Double 2 = ☐ + 10 = ☐ ÷ 2 = ☐ – 2 = ☐









You could also try to find out:

- why this works;
- about other tricks that can be performed with numbers;
- a number trick to confuse your friends.

Challenge 4

How many seconds are in 5 minutes?

How many minutes are in 4 hours?

How many seconds are in 21/2 minutes?

Challenge 10

Sudoku 4 × 4 Puzzles

Each row and column contains all the digits 1 to 4.

4			3
3	1		
2			1
		2	

4	1		2
2		1	4
1	4	2	
	2		

4	1	3	
		1	
1			4

2	4	1	3
3	1		4
		4	

			2
2	4	1	
	1		
4		3	

	4		
2			4
	1		2
4		3	1

Challenge 6

Find a shoebox.

Measure the perimeter of the top of the box.

If a stamp is 1 x 1 cm, how many are needed to make a border around the top?

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Challenge 7

Magic Squares

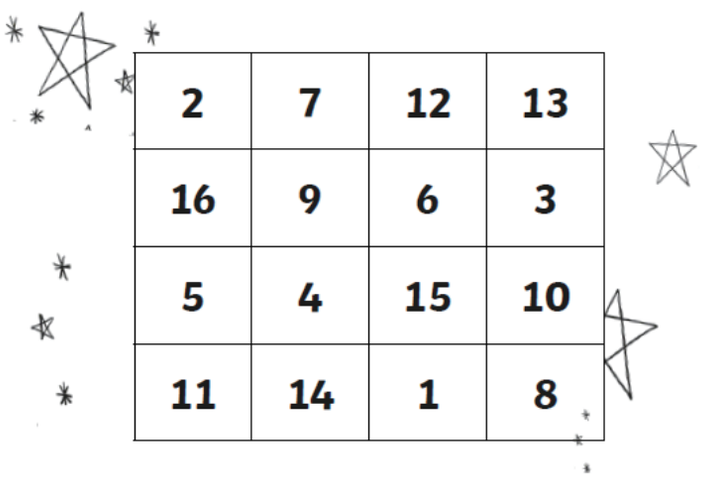
Amazing Fact

In 2004, the Czech magician Zdenek Zahradka spent 10 days buried underground in a coffin without food or water. He survived by breathing through a ventilation pipe.

Challenge

Did you know that maths and numbers can also be magic?

Look at the magic square below. The total along any line, horizontal, vertical or diagonal is the same. The 'magic number' for this square is 34. Now complete the activity sheet provided.



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

Magic Squares

Complete these magic squares.

Don't use the same number twice in a square and the numbers must add up to the same number in each row, column and diagonal line.

a)

8		9
	6	
3		4

b)

13	9	8
12		

c)

3		
10	5	
2		

d)

2	7	6
9		1
	3	

e)

	2	
	7	
4		5

f)

6		11
7		12

g)

9		
8		6
		5

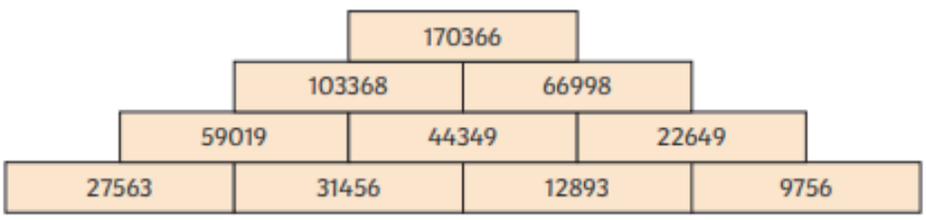
h) Now make your own.

i) Now make your own.

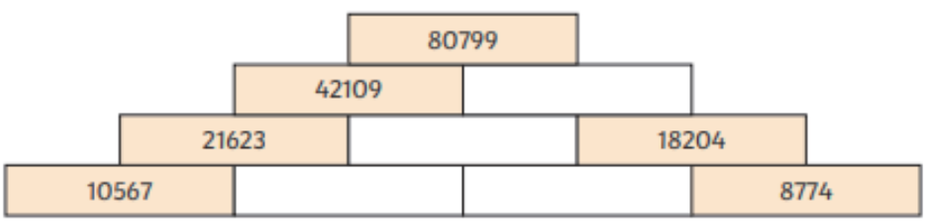
Challenge 8

Pyramid Puzzles

Use addition and subtraction calculations to complete these pyramids.
The first one has been done for you.



1



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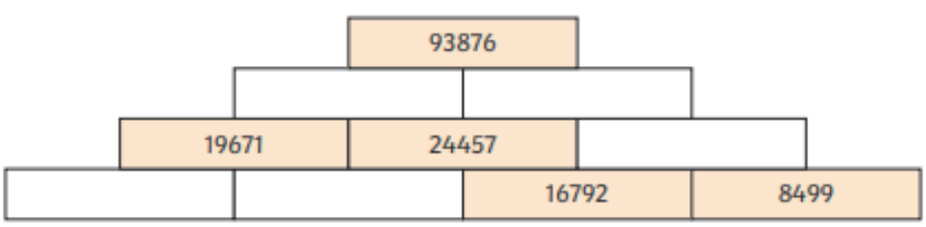

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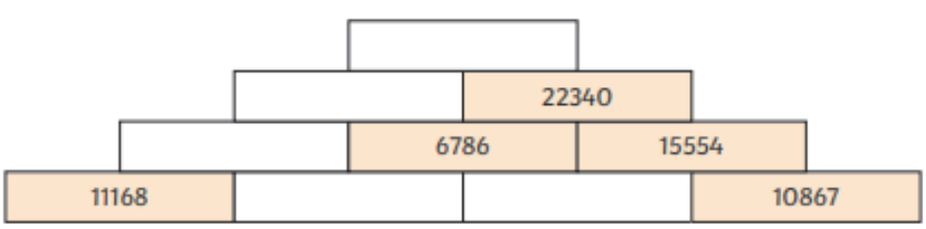

Challenge 9

A farm has cows and ducks. There are 78 feet and 27 heads.
How many of each animal are there?
How do you know?

Challenge 10

Play Tommy's Trek
https://mathsframe.co.uk/en/resources/resource/318/Tommys-Trek-Times-Tables

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Challenge 11

Solve the mystery by working out the clues.

The Mystery of the Spoiled Party Bags

Freddie has been looking forward to his birthday party for weeks. He has invited both friends and family to help him celebrate. There are party games, lots of snacks and party bags for everyone to enjoy when they get home. He hopes that everyone has a nice time.

However, disaster has struck!

When everyone is tired, full of food and it is time for them to go home, they find that someone has stolen some of the gifts from inside the party bags. Freddie is really upset. Who could have done such a mean thing?

As the local police officer, and a parent of one of the children at the party, you offer to help find the party bag spoiler. Can you solve the clues and send everyone home happily?

The Suspects

Name	Male or Female?	Age	Favourite Colour	Favourite Party Game	Party Bag Gift
Ben Costume	male	10	red	musical bumps	ball
Fred Present	male	12	blue	musical statues	blocks
Ilona Toy	female	15	red	pass the parcel	whistle
Inka Teddy	female	86	green	piñata	car
Ronald Cheer	male	10	yellow	hide and seek	sweets
Jackie Joke	female	12	violet	hide and seek	sweets
Kerry Joy	female	9	green	musical bumps	ball
Kim Noisy	female	50	blue	pass the parcel	whistle
Patrick Parcel	male	86	red	piñata	ball
Lily Cool	female	22	yellow	hide and seek	blocks
Mike Laugh	male	50	green	musical statues	car
Oliver Music	male	19	violet	hide and seek	sweets
Karina Piñata	female	86	yellow	pass the parcel	car
Philip Jelly	male	22	blue	musical statues	car
Robbie Song	male	48	green	pass the parcel	ball
Lauren Cake	female	15	red	piñata	whistle
Ryan Hat	male	9	blue	musical bumps	whistle
Sam Game	male	5	blue	piñata	blocks
Simon Conga	male	50	red	hide and seek	car
Sophie Party-Bag	female	5	violet	pass the parcel	ball
Steve Dance	male	50	green	hide and seek	car
Sue Sweet	female	10	red	piñata	sweets
Thomas Prize	male	12	yellow	pass the parcel	whistle
Violet Trampoline	female	9	violet	pass the parcel	blocks

Clue 1: True or False

Identify whether these mathematical statements are true or false.

If there are more true answers, the culprit is **female**.

If there are more false answers, the culprit is **male**.

	True	False
20 × 8 = 2 × 80		
94 + 50 = 134		
72 − 25 = 57		
54 ÷ 9 = 6		
997 − 771 = 226		
48 ÷ 8 = 73		
42 × 2 = 94		
650 + 803 = 1453		
11 + 17 = 75		
20 × 4 = 80		
541 − 88 = 453		
30 ÷ 1 = 31		
864 × 0 = 864		
903 + 907 = 1810		
394 − 369 = 25		

Clue 1: The thief is _____.

Clue 2: Number Sequences

Identify the amount by which each number sequence is increasing or decreasing.

Find the next three numbers in each sequence.

Take the final number in each sequence and circle it in the grid below.

Rearrange the circled words to discover the second clue.

28	35	42			
15	18	21			
7	14	21			
8	16	24			
24	30	36			
14	12	10			
75	100	125			
40	35	30			

200 **parcel**	48 **the**	2 **least**	40 **bumps**	4 **culprit**
190 **hide**	73 **seek**	42 **the**	16 **hunt**	54 **the**
15 **enjoys**	63 **game**	56 **musical**	30 **pass**	18 **statues**

Clue 2: _____.

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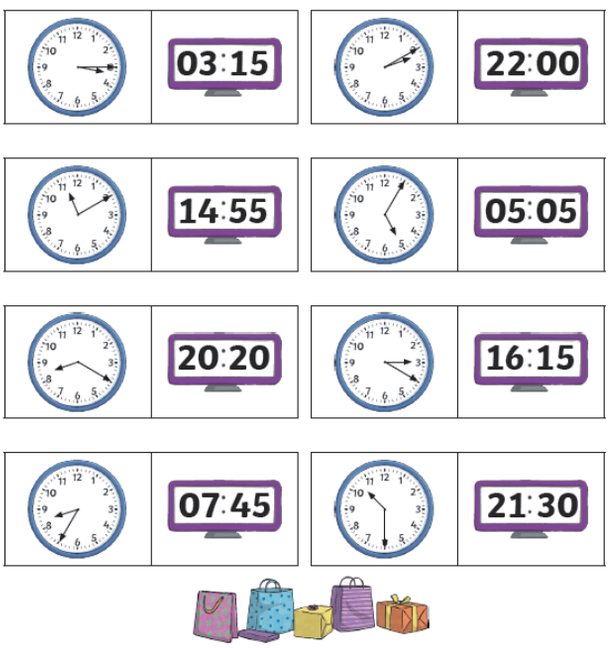
Clue 3: Clock Match-Up

Identify whether these pairs of analogue and digital clocks tell the same time.

If there are more pairs of clocks that **do** tell the same time, the culprit is **older than 20**.

If there are more pairs of clocks that **do not** tell the same time, the culprit is **younger than 20**.

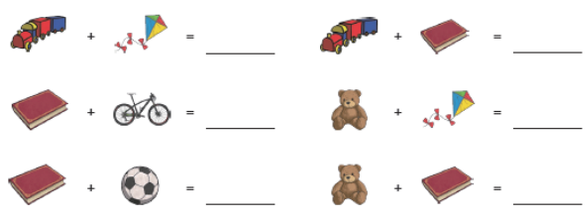


Clue 3: The culprit is _____.

Clue 4: Toy Totals

Identify the total costs of the toys in each question. Circle the answers in the grid below. Rearrange the circled words to discover the fourth clue.

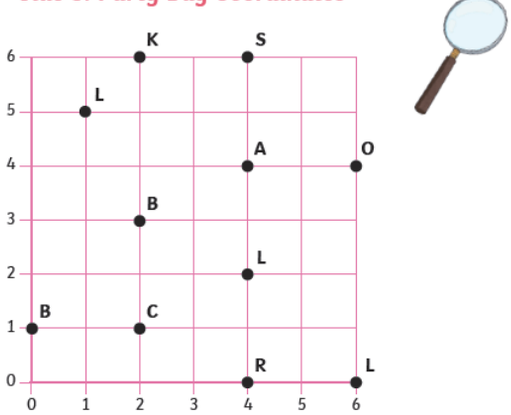
 £76.99	 £2.83	 £10.33
 £17.91	 £11.78	 £20.11



£13.16 **colour**	£10.16 **green**	£30.44 **violet**	£97.10 **the**
£79.82 **is**	£38.02 **culprit's**	£89.41 **brown**	£62.34 **white**
£41.89 **orange**	£58.12 **yellow**	£31.89 **favourite**	£10.97 **black**

Clue 4: _____

Clue 5: Party Bag Coordinates



Identify the letters which are at the coordinate positions below.

☐	☐	☐	☐	☐	☐
(0,1)	(4,2)	(6,4)	(2,1)	(2,6)	(4,6)

Clue 5: The toy in the culprit's party bag is _____.

Have you solved all the clues and worked out who the culprit is?

The culprit is: _____

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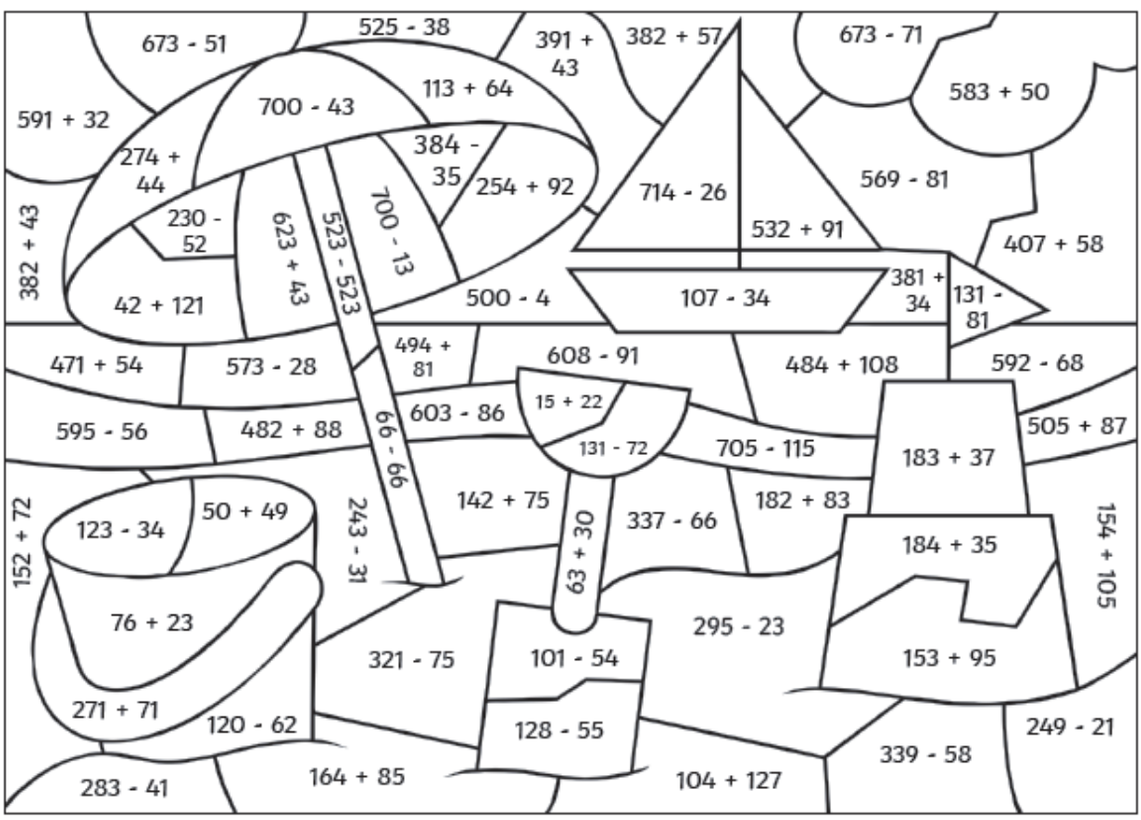
Challenge 12

Look around your house and find things that are:

Colour by Calculation

Use the key to colour the summer-themed picture.



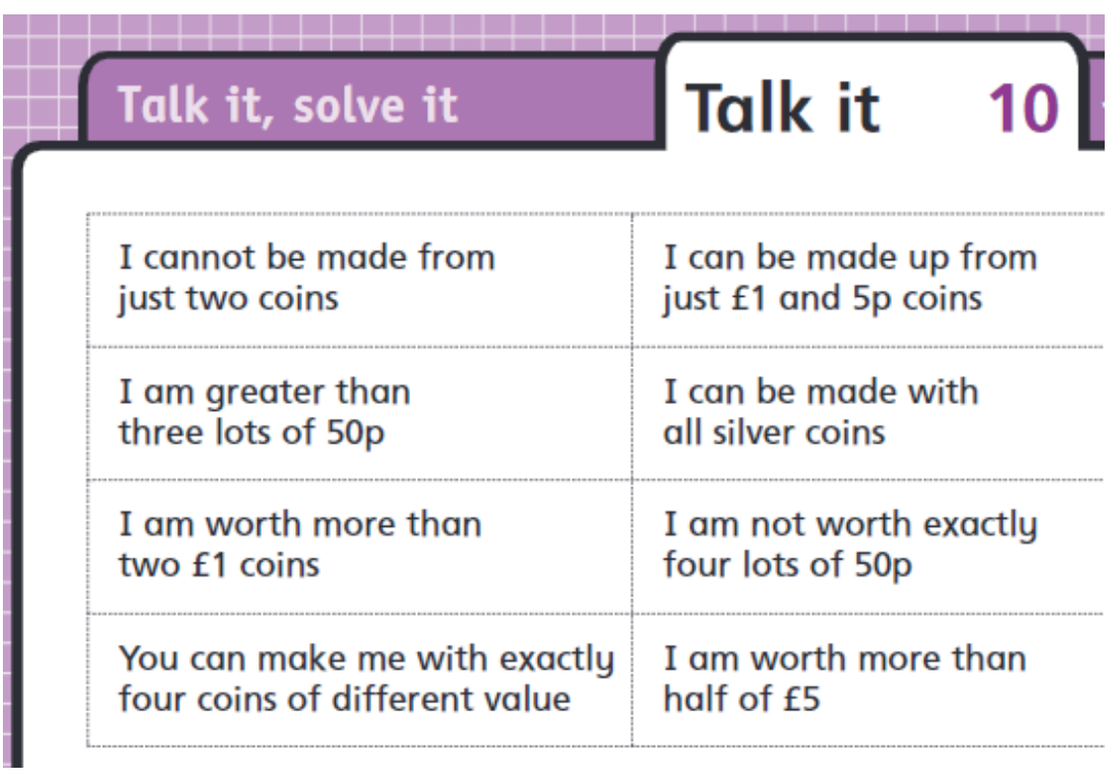
Grey:	Red:	Orange:	Yellow:	Green:	Light Blue:	Dark Blue:	White:
0	1 – 100	101 – 200	201 – 300	301 – 400	401 – 500	501 – 600	601 – 700

Challenge 13

Something bigger than 1 meter	
Something smaller than 1cm	
Something heavier than you	
Something lighter than a feather	
Something that is a cube	
Something that is a cylinder	
Something that is taller than you	
Something that is smaller than a mouse	

Challenge 14

What am I?



Talk it, solve it

Talk it 10

I cannot be made from just two coins	I can be made up from just £1 and 5p coins
I am greater than three lots of 50p	I can be made with all silver coins
I am worth more than two £1 coins	I am not worth exactly four lots of 50p
You can make me with exactly four coins of different value	I am worth more than half of £5

Challenge 15

Play

What's the Difference?

Object: Players roll dice to determine two three-digit numbers then find the difference between them. The difference is their score. Players add on to their scores with each round. The player who has 2000 points first is the winner.

Number of Players: 2 – 4

Materials: Dice, number line work sheets, paper and pencil for recording the scores.

Playing:

1. Players take turns. During a turn, a player rolls three dice (or one die three times) to construct a three-digit number. The player then does this again to make a second three-digit number.
2. The player then finds the difference between the numbers. Players may use a number line, compute on paper, or solve it in their heads.
3. The player reports the difference and records the score for that turn. If another player believes the difference found is not correct, that player can challenge. If the difference was incorrect, the challenging player gets the points for that turn (the correct difference between the two rolled numbers).
4. Players continue play clockwise around the circle. The player to collect 2000 points first is the winner.

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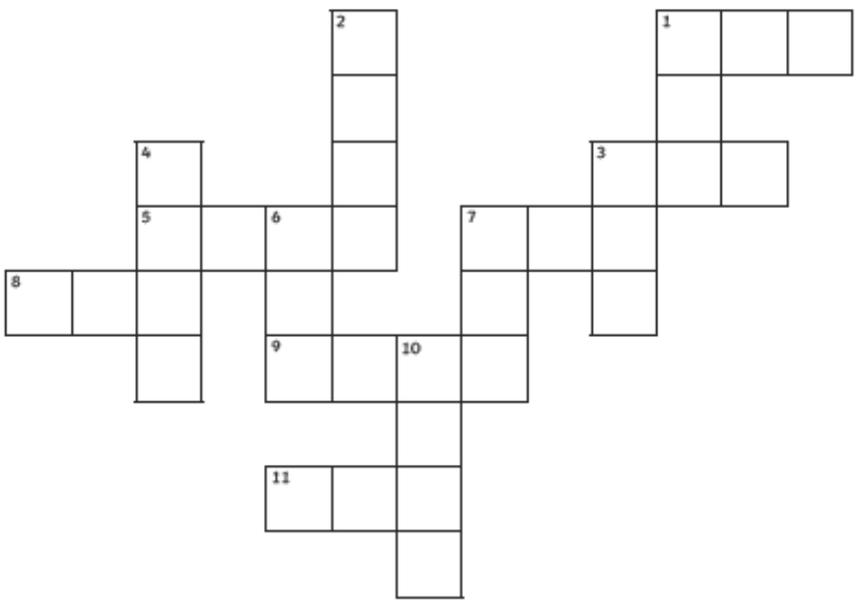
Challenge 16

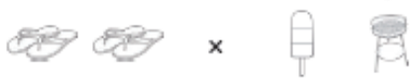
Play

Number Cross

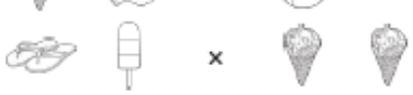
Use the summer-themed code to complete the number cross. Use written methods of multiplication to solve the number cross.



Across:

1. 
3. 
5. 
7. 
8. 
9. 
11. 

Down:

1. 
2. 
3. 
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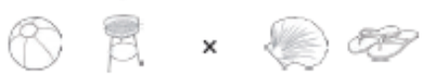
10. 

									
2	4	8	6	1	0	5	9	3	7