### Maths-Skills

This lesson will be live on teams for your class at;

9am-5L

10am-5H

11am-5M

Learning objective; To revisit lockdown learning to solve a mystery.

## The Stolen Dragon Head

In the town of Westleigh, people are preparing for Chinese New Year. Everyone is very excited and really looking forward to the fabulous Dragon Dance. The dances are to be performed by the Lily Yun Dance Troupe; the wonderful costumes they will wear have taken a long time to make.

However, two days before the big day, the dragon head has gone missing! The performance cannot go ahead without it and it has taken three weeks to make — there is no time to make a

replacement!

Today we are going to answer some mathematical questions to try and uncover who has pinched the dragon head. Use the answers to solve the mystery and reveal our thief!

As Detective Chief Inspector, it is your job to look at all the clues, and find out who has stolen the dragon's head. Your officers have taken down the descriptions of all the people in the dance troupe as only they have had access to the costume cupboard.

Name	Malc/Female	Agc	Height	Hair length	Glasses
Chen	F	32	tall	long	Υ
Mark	М	28	tall	short	Υ
Ken	М	22	short	bald	Υ
Lan	F	35	short	short	N
Jayne	F	18	short	long	Υ
Lily	F	29	tall	long	Υ
Keung	М	30	tall	short	N
Symmon	М	17	short	bald	N (
Jία	F	22	tall	short	Υ
Kee	М	38	short	bald	N
Chi	М	50	tall	short	Υ
Diana	F	41	tall	long	Υ
Shun	F	33	short	long	Υ
Ming-húa	М	40	short	long	N
Ray	М	29	short	short	N
Alusine	М	17	tall	short	Υ
Yun	F	30	short	short	N
Daniel	М	32	short	short	Υ
Linqin	F	26	tall	long	Υ
Steve	М	22	short	short	N
Geming	М	31	short	bald	Υ
Dai-tai	F	30	tall	short	Υ
Anna	F	19	short	long	Υ
Dharmesh	М	39	short	short	N
Zhen	F	21	short	long	N
Lin	F	53	short	long	Υ
Hamza	М	45	short	short	N
Tony	М	40	tall	short	Υ
Lee	М	32	short	long	Υ
Gui	М	28	tall	short	Y

Police have visited the Lily Yun's dance troupe and collected information from all of the suspects.

The clues will point to information about the culprit.

As we reveal information we will revisit the suspect list eliminating those innocent dancers.

Count in the specified multiples from the first number in the circle, then take the last number you reach and find the corresponding word in the table below. Then, rearrange the words to form a sentence and solve the first clue.

#### Count on in multiples of 8



Count on in multiples of 50



Count on in multiples of 9



Count on in multiples of 100



316	940	72	65
thief	stole	could	tall
48	77	88	642
lost	was	a	the
442	35	52	215
dragon	before	short	for

#### Counting on in multiples

We have looked at counting in multiples, this time we have been asked to **count on**. This means you need to add the multiple to your original number, and then add the multiple to that sum.

e.g. starting at 7 count on in multiples of 6.

7 +6=13 +6= 19 +6= 25 +6= 31 .....and so on

Name	Male/Female	Age	Height	Hair length	Glasses	34/1 . 1
Chen	F	32	tall	long	Υ	What have
Mark	М	28	tall	short	Υ	
Ken	М	22	short	bald	Υ	
Lan	F	35	short	short	N	Count or
Jayne	F	18	short	long	Υ	
Lily	F	29	tall	long	Υ	(4)(12)(20)
Keung	М	30	tall	short	N	
Symmon	М	17	short	bald	N (	Count on
Jia	F	22	tall	short	Υ	
Kee	М	38	short	bald	N	<b>(16) (66) (</b> 116)
Chi	М	50	tall	short	Y	
Diana	F	41	tall	long	Y	Count or
Shun	F	33	short	long	Y	
Ming-húa	М	40	short	long	N	(23) (32) (41)
Ray	М	29	short	short	N	
Alusine	М	17	tall	short	Υ	Count on
Yun	F	30	short	short	N	
Daniel	М	32	short	short	Y	(42) (142) (242)
Linqin	F	26	tall	long	Υ	
Steve	М	22	short	short	N	316
Geming	М	31	short	bald	Υ	
Dai-tai	F	30	tall	short	Υ	thief
Anna	F	19	short	long	Υ	
Dharmesh	М	39	short	short	N	48
Zhen	F	21	short	long	N	lost
Lin	F	53	short	long	Υ	
Hamza	М	45	short	short	N	
Tony	М	40	tall	short	Υ	442
Lee	М	32	short	long	Υ	dragon
Gui	М	28	tall	short	Y	

#### What have we found?

#### Clue 1

Count on in multiples of 8



Count on in multiples of 50



Count on in multiples of 9



Count on in multiples of 100



So who can we eliminate from our investigation?

	316	940	72	65	
	thief	stole	could	tall	
-	48	77	88	642	
-	lost	was	α	the	
	442	35	52	215	
	dragon	before	short	for	

Name	Male/Female	Age	Height	Hair length	Glasses
Siton	·	52	····	tong	
T TOOL IC		20	cutt	Sitore	
Ken	М	22	short	bald	Υ
Lan	F	35	short	short	N
Jayne	F	18	short	long	Υ
Litig	,	۷,	ш	tortg	,
Roung		50	cutt	Sitort	N
Symmon	М	17	short	bald	N
Sta		22	tutt	Sitort	,
Kee	М	38	short	bald	N
Oill		50	tutt	Sitore	
Diana			·····	tortg	
Shun	F	33	short	long	Υ
Ming-húa	М	40	short	long	N
Ray	М	29	short	short	N
Atastite		1,	tutt	SHOTE	,
Yun	F	30	short	short	N
Daniel	М	32	short	short	Υ
Largar		20	tun	tong	,
Steve	М	22	short	short	N
Geming	М	31	short	bald	Y
Dar tat		50	tun	Sitort	,
Anna	F	19	short	long	Y
Dharmesh	М	39	short	short	N
Zhen	F	21	short	long	N
Lin	F	53	short	long	Y
Hamza	М	45	short	short	N
Tonu	М	4.0	+all	ab a ret	V
Lee	М	32	short	long	Υ
Cui		20	. 11		V

Anyone who is not listed as short is no longer a suspect. Therefore we have removed their details.

We are still left with many suspects, lets visit clue 2.

$$(23 \times 2) (7 \times 2) (9 \times 2) (6 \times 6) (9 \times 2)$$

$$(8 \times 4) (2 \times 19) (6 \times 6) (2 \times 11)$$

$$(3 \times 8) (5 \times 2) (13 \times 2) (4 \times 11)$$

$$(23 \times 2) (4 \times 12) (4 \times 11) (2 \times 5) (12 \times 3) (8 \times 2) (2 \times 23)$$

$$(2 \times 27) (2 \times 9) (22 \times 2) (9 \times 2)$$

$$(2 \times 10) (19 \times 2) (5 \times 10) (3 \times 12) (2 \times 8)$$

Multiply the numbers to spell out the correct words to solve the next clue.

А	В	O	D	E	F	G	Н	I	J	К	L	М
10	12	14	16	18	20	22	24	26	28	30	32	34
N	0	Р	ď	R	s	Т	U	V	w	х	Υ	Z
36	38	40	42	44	46	48	50	52	54	56	58	60

A coded note has been found.

Can you use your mental multiplication skills to find each product of the brackets.

They will relate to a letter spelling a word.

Can we work out the next clue?

Name	Male/Female	Age	Height	Hair length	Glasses
51.0		52	can	tortg	
110010		20	can	Sitort	
Ken	М	22	short	bald	Υ
Lan	F	35	short	short	N
Jayne	F	18	short	long	Υ
Ettig		27	tun	tortg	,
Roung		50		Sittore	.,
Symmon	М	17	short	bald	N C
Jiu		22	tun	SITOTE	
Kee	М	38	short	bald	N
- Oill		50	tun	Sitort	
Diana			catt	tong	
Shun	F	33	short	long	Υ
Ming-húa	М	40	short	long	N
Ray	М	29	short	short	N
Atastite		11	ш	SHOTE	
Yun	F	30	short	short	N
Daniel	М	32	short	short	Υ
Emqui		20	tun	tong	,
Steve	М	22	short	short	N
Geming	М	31	short	bald	Y
Dat tat	,	50	tun	Sitort	,
Anna	F	19	short	long	Y
Dharmesh	М	39	short	short	N
Zhen	F	21	short	long	N
Lin	F	53	short	long	Υ
Hamza	М	45	short	short	N
Tonu	M	40	+all	short	V
Lee	М	32	short	long	Y
Ci		20	. 11		V

With this clue, who can be eliminated from our investigation?

Name	Male/Female	Age	Height	Hair length	Glasses
- Citori		32		torig	,
770076		20	tutt	Sitore	
, and		2.2	Sitore	bata	
<u> </u>		Û.	Sitore	Sitter t	
Jayne	F	18	short	long	Υ
Litty		27	tun	tortg	'
roung		50	can	Sitore	N
ognimon		11	Sitore	Data	· ·
Jita		22	tun	Sitort	-
14	11	22	,		1
- Citt		50	tutt	Sitore	
Diana			tatt	tortg	
Shun	F	33	short	long	Υ
Ming-húa	М	40	short	long	N
Kug		۲/	Sitort	Sitort	N
Atastite		11	tun	Sitort	
run	-	30	SILUIT	SILUTE	IN
Daniel	1-1	32	Sitore	Sitort	
Linqui		20	tan	tong	,
200.0	1	22	J	31.01-0	
^i		24	-	1 11	V
Dat tat	·	50	tun	Sitort	,
Anna	F	19	short	long	Υ
		0.0		J	
Zhen	F	21	short	long	N
Lin	F	53	short	long	Υ
Hamaa	M	/.E	als aust	a la a sub	N
Tony	N4	40	+all	a bart	V
Lee	М	32	short	long	Υ
Cui		20			V

Anyone who is not listed as having long hair is no longer a suspect.

Therefore we have removed their details.

The list of suspects has shrunk, lets visit clue 3 to find more information.

Solve these number riddles. Then, look for the correct answer in the table below and write the corresponding words in a sentence to find out the next clue.

- A. I think of a number and subtract seven. I then multiply by two. The answer is 38. What number was I thinking of?
- B. I think of a two-digit number which is a multiple of eight. The product of its digits is 24. What number was I thinking of?
- C. Find 2 two-digit numbers which are multiples of six where the sum of the digits of each number is 15.
- D. I think of a number and divide it by five. I then add nine. The answer is 17. What number was I thinking of?

64	24	40	19	96
thief	didn't	the	long	dropped
78	46	72	26	22
glasses	wear	any	their	hair

Work out which numbers are being referred to.

You will need to think about the vocabulary being used to work out the number.

This will then give you 4 words, put them in order to reveal the next clue.

#### Clues;

Multiple- in its times table
Using the inverse- if I had divided by 5
to make the number 3, to find the
original I will need to multiply by 5.

Name	Male/Female	Age	Height	Hair length	Glasses
- inch		52	tan	tong	
r recrit		20	tan	Sitore	·
ii.			Sitore	bata	
-	-	4.0	Sittor e	3110112	
Jayne	F	18	short	long	Υ
Litig	'	27	tutt	tortg	'
noung		50	·	311011	i'
ognimon		.,	tun	SHOTE	
- Jtu		22		1.11	
- Ont		50	tatt	Sitore	
Diana		1,	tan	tong	
Shun	F	33	short	long	Υ
Ming-húa	М	40	short	long	N
Kug		۷,	Sitort	Sitore	,,
Atustite	1.1	1,	tutt	SHOTE	
run	r	30	SHOTE	SHOTE	IN
Daniel	171	32	311011	SHOTE	'
Lingin		20	·	tong	
Coming		24		3.1.1	
<u></u>					
Anna	F	19	short	long	Y
	,	0.7	511011	iong	, ,
Zhen	F	21	short	long	N
Lin	F	53	short	long	Υ
Hamaa	М	<i>I.</i> F	-l	a la a sut	M
Tony	М	/· O	+all	chort	V
Lee	М	32	short	long	Υ
C:		20	. 11		

A. I think of a number and subtract seven. I then multiply by two. The answer is 38. What number was I thinking of?

26

B. I think of a two-digit number which is a multiple of eight. The product of its digits is 24. What number was I thinking of?

64

C. Find 2 two-digit numbers which are multiples of six where the sum of the digits of each number is 15.

78, 96

D. I think of a number and divide it by five. I then add nine. The answer is 17. What number was I thinking of?

40

64	24	40	19	96
thief	didn't	the	long	dropped
78	46	72	26	22
glasses	wear	any	their	hair

What does this clue tell us? Who can we eliminate?

Name	Male/Female	Age	Height	Hair length	Glasses
		52	tatt	tong	
T.C.		20	tatt	Sitore	
Ken			Sitore	balla	
		ÜÜ	511.01.0	511011	
Jayne	F	18	short	long	Y
Litig		۷,	tun	tortg	'
roung		50	can	Sitore	· ·
ogminion		11	Sitore	butu	
Jid		22	tun	Sitort	· ·
14		22			
O.L.		50	tutt	Sitore	
Diana			tatt	tong	
Shun	F	33	short	long	Y
		1.0	Ji.o. c	iong	
Kug		۲,	Sitore	Sitore	
Musine		Δ,	tutt	311011	'
Tuit		30	SHOTE	SHOTE	IN
Damei	1-1	32	SILOTE	SILOIL	
Luique		20	tun	tong	'
Cion			Ji.o. c	Ji.o. c	
Commission		2.4	_	1 11	V
Dar tar		50	tan	Sitort	·
Anna	F	19	short	long	Υ
51		0.7	J	J	
Zitori			Sitore	tong	
Lin	F	53	short	long	Υ
Hamza	M	1.5	ala aust	a la a sub	N
Tonu	М	4.0	+all	abart	V
Lee	М	32	short	long	Y
Cui		20	. 11		V

Anyone who is not listed as having glasses is no longer a suspect.

Therefore we have removed their details.

5 suspects left, a couple more clues should lead us to the culprit.

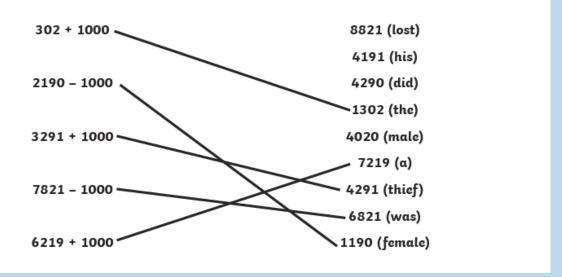
Solve these addition and subtraction statements then match up the answers and words.

302 + 1000	8821 (lost)
	4191 (his)
2190 - 1000	4290 (did)
	1302 (the)
3291 + 1000	4020 (male)
	7219 (a)
7821 - 1000	4291 (thicf)
	6821 (was)
6219 + 1000	1190 (female)

Add and subtract 1000 from these numbers, they will reveal a clue, then place the clue together to reveal the next clue.

Name	Male/Female	Agc	Height	Hair length	Glasses
		52	tati	tong	
T TOUR		20	tatt	Sitore	
		66	Sitore	batta	
-		- 00	51101-6	51101-6	
Jayne	F	18	short	long	Υ
Ettig		21	tutt	tong	,
Roung		50	tatt	511011	N
ognimon		Σ,	Sitore	bata	
Jia		22	tatt	Sitort	
		20		1	
Oitt		50	tun	Sitort	
Diana		7.1	carr	tong	
Shun	F	33	short	long	Υ
i iing lain		13	·····	tong	
Kug		۷,	Sitore	Sitore	
Masine		1,	tutt	SHOTE	
ruit	r	30	Sitort	SHOTE	N
Dunner	M	32	SILOTE	SILOTE	
conque		20	tan	torig	,
- Ciuri		22	<u></u>	5,101-5	
		2.1	١ .		.,
our tur		50	tatt	Sitore	,
Anna	F	19	short	long	Y
21		0.7	J	31.3.2	
			Sitore	tong	
Lin	F	53	short	long	Y
Hamaa	M	4.5	abaut	alaa mt	N
Tonu	M	40	tall	chart	V
Lee	М	32	short	long	Υ
Cui		20			V

Solve these addition and subtraction statements then match up the answers and words.



What does this clue tell us? Who can we eliminate?

Name	Male/Female	Age	Height	Hair length	Glasses
- Citori		52	····	tong	
- race K	.,	20	·····	Sitore	
T.C.T.			511011	Data	
Lan		0.0	Sitore	Sitore	
Jayne	F	18	short	long	Υ
Ettig		27	tutt	tortg	<u> </u>
Noung		50	tatt	Sitore	· ·
ogminion		11	Sitore	Data	· · ·
510		22	tun	SHOTE	- :-
Ont	1.1	50	tutt	Sitort	'
Chura	-	7.2	- h - ut	long	·
Shun	F	33	short	long	Y
9				long	
nug	- ''	27	Sitort	Sitort	.,
Attastite	- ''	11	tutt	SHOTE	<u>'</u>
Tuit	r	30	SHOTE	SHOTE	IN
Daniel	1-1	32	311011	Sitort	
- Circqiri				iong	
Coming		24	1 .	1 11	
5					
Anna	F	19	short	long	Y
Aititu	r	19	SHOTE	long	,
Lin	F	53	short	long	Y
Hamaa	, M	55	ah aut	chart	
Tonu	M	40	+all	chart	V
Cui	M	20		1 .	V

Anyone who is not listed as female is no longer a suspect. Therefore we have removed their details.

Still 4 suspicious suspects left, lets see if finding out their age will help us.

Fill in the missing numerators of these fractions and then work out the correct word to solve the last clue.

1	=	4	=	8	=	16
2		7		•		

$$\frac{1}{4} = \frac{1}{8} = \frac{1}{12} = \frac{1}{16}$$

$$\frac{2}{3} = \overline{6} = \overline{9} = \overline{12}$$

8	4	12	2
16	8	20	8
the	years	after	forty
<u>5</u> 10 αs	16 32 found	2/4 thief	8 10 twenty
2 3 fifty	4/6 was	7 10 dragon	4 16 thirty
8	<u>6</u>	3	6
12	24	12	9
and	head	between	old

You need to find fractions that are equivalent.

You already have the denominator, so remember the rule;

"What I do to the top I do to the bottom".

So work out how you got from the original denominator to the new one, then do the same to the numerator.

e.G 
$$\frac{3}{4} = \frac{?}{12}$$

$$4 \times 3 = 12$$

e.G 
$$\frac{3}{4}$$
 = ?/12 4 **x 3** = 12 so.... 3 **x 3** = 9 --- 9/12

Name	Male/Female	Age	Height	Hair length	Glasses
- Citott	,	52		tong	
- rark		20	· · · · ·	Sitore	'
		4.4	511011	bara	
T	-	10	ah aut	Jana	,,
Jayne	F	18	short	long	Υ
Litig	'	27	tutt	tortg	
ognimon	- ''	1,	Sitore	Data	, ,
Jiu		22	tun	SHOTE	
		22			
Ont		50	tutt	311011	,
Stana	,	7.2	tatt	tong	-
Shun	F	33	short	long	Υ
· ····y ·····			5110112	tong	
Kug		٤/	Sitort	311011	N
Attustite	- 17	¥./	tutt	311011	'
ruit	r	30	SILUTE	Sitort	IN
Daniel	M	J2	311011	Sitort	
- Ciriqin		20	·	iong	
Coming		24	1 .	1 11	
<i></i>		50	tun	Sitort	
Anna	F	19	short	long	Υ
	-	0.0	31072	310.12	
			511011	tortg	.,
Lin	F	53	short	long	Υ
Hamza	М	l.r	als a set	alsaut	N
Tonu	М	40	+all	short	V
<u> </u>		00	Ji.o. i	torng	·
Ci		20	. 11		V

$$\frac{1}{2} = \frac{2}{4} = \frac{4}{8} = \frac{8}{16}$$

$$\frac{1}{4} = \frac{2}{8} = \frac{3}{12} = \frac{4}{16}$$

$$\frac{2}{3} = \frac{4}{6} = \frac{6}{9} = \frac{8}{12}$$

8	4	1 <u>2</u>	2
16	8	20	8
the	years	after	forty
<u>5</u>	16	2	8
10	32	4	10
αs	found	thief	twenty
2	<u>4</u>	7	4
3	6	10	16
fifty	wαs	dragon	thirty
8	<u>6</u>	3	6
12	24	12	9
and	head	between	old

So what age is our criminal between?

Name	Male/Female	Age	Height	Hair length	Glasses
		52		tong	
1100110		20	tan	Sitore	
				butu	
Eart			311011	51101 6	
Jugne	<u>'</u>	10	Sitort	tortg	'
Littg		27	tun	tortg	' '
noung		50		51101-6	
ogmmon		Ι,	Sitort	Data	
514		22	tatt	Sitort	
Ont		50	tutt	Sitore	
Diana			tatt	tortg	,
Shun	F	33	short	long	Υ
		10		iong	
- Trung Itali					
nug		27	Sitort	Sitort	
Attastite	11	17	tatt	311011	
run	-	30	SILOIL	SHOTE	IN
Daniei	1-1	32	Sitort	Sitore	
Emque		20	tatt	tong	,
Ci		24	1 .	3.13.1	
J					
Dat tat	-	50	tutt	311011	'
A 15 15 2	F	10	ale a sit	lang.	V
51		<u> </u>		31.0.0	
Ziton			511016	tortq	
Hamza	M	45	short.	abant	, N
				ala aut	
Tony	М	40	tall	short	V
		- 00			
Ci		20	. 11		V

After eliminating anyone younger than 30 and older than 40 we have found our Dragon head thief!

# The Dragon head was given back to the dance troupe and Shun has been locked up behind bars!

The dance troupe were so appreciative they have sent you a video to their latest street performance!

https://www.youtube.com/watch?v=0eLW0TkK5Jw

