

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

Clue 1

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 thief	940 stole	72 could	65 tall
48 lost	77 was	88 a	642 the
442 dragon	35 before	52 short	215 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= 31and so on

Name	Male/Female	Age	Height	Hair length	Glasses
Chen	F	32	tall	long	Y
Mark	M	28	tall	short	Y
Ken	M	22	short	bald	Y
Lan	F	35	short	short	N
Jayne	F	18	short	long	Y
Lily	F	29	tall	long	Y
Keung	M	30	tall	short	N
Symmon	M	17	short	bald	N
Jia	F	22	tall	short	Y
Kee	M	38	short	bald	N
Chi	M	50	tall	short	Y
Diana	F	41	tall	long	Y
Shun	F	33	short	long	Y
Ming-hua	M	40	short	long	N
Ray	M	29	short	short	N
Alusine	M	17	tall	short	Y
Yun	F	30	short	short	N
Daniel	M	32	short	short	Y

Linqin	F	26	tall	long	Y
Steve	M	22	short	short	N
Geming	M	31	short	bald	Y
Dai-tai	F	30	tall	short	Y
Anna	F	19	short	long	Y
Dharmesh	M	39	short	short	N
Zhen	F	21	short	long	N
Lin	F	53	short	long	Y
Hamza	M	45	short	short	N
Tony	M	40	tall	short	Y
Lee	M	32	short	long	Y
Gui	M	28	tall	short	Y

What have we found?

Clue 1

Count on in multiples of 8

4 12 20 28 36 44 52

Count on in multiples of 50

16 66 116 166 216 266 316

Count on in multiples of 9

23 32 41 50 59 68 77

Count on in multiples of 100

42 142 242 342 442 542 642

So who can we eliminate from our investigation?

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

Name	Male/Female	Age	Height	Hair length	Glasses
Shen	F	32	tall	long	Y
Mark	M	20	tall	short	Y
Ken	M	22	short	bald	Y
Lan	F	35	short	short	N
Jayne	F	18	short	long	Y
Etty	F	27	tall	long	Y
Roaring	M	30	tall	short	N
Symmon	M	17	short	bald	N
Stu	F	22	tall	short	Y
Kee	M	38	short	bald	N
Ort	M	30	tall	short	Y
Stana	F	42	tall	long	Y
Shun	F	33	short	long	Y
Ming-hua	M	40	short	long	N
Ray	M	29	short	short	N
Alashe	M	17	tall	short	Y
Yun	F	30	short	short	N
Daniel	M	32	short	short	Y
Enqin	F	20	tall	long	Y
Steve	M	22	short	short	N
Geming	M	31	short	bald	Y
Dan tan	F	30	tall	short	Y
Anna	F	19	short	long	Y
Dharmesh	M	39	short	short	N
Zhen	F	21	short	long	N
Lin	F	53	short	long	Y
Hamza	M	45	short	short	N
Tony	M	40	tall	short	Y
Lee	M	32	short	long	Y
Gui	M	20	tall	long	Y

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.

$$(5 \times 2) (12 \times 4) / (4 \times 12) (12 \times 2) (9 \times 2)$$

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

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

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

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

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

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

Clue 2

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

A	B	C	D	E	F	G	H	I	J	K	L	M
10	12	14	16	18	20	22	24	26	28	30	32	34
N	O	P	Q	R	S	T	U	V	W	X	Y	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
Shun	F	32	tall	long	Y
Mark	M	20	tall	short	Y
Ken	M	22	short	bald	Y
Lan	F	35	short	short	N
Jayne	F	18	short	long	Y
Ellie	F	27	tall	long	Y
Roaring	M	30	tall	short	N
Symmon	M	17	short	bald	N
Stu	F	22	tall	short	Y
Kee	M	38	short	bald	N
Orin	M	30	tall	short	Y
Stana	F	42	tall	long	Y
Shun	F	33	short	long	Y
Ming-hua	M	40	short	long	N
Ray	M	29	short	short	N
Alastair	M	17	tall	short	Y
Yun	F	30	short	short	N
Daniel	M	32	short	short	Y
Enrique	F	20	tall	long	Y
Steve	M	22	short	short	N
Geming	M	31	short	bald	Y
Dan	F	30	tall	short	Y
Anna	F	19	short	long	Y
Dharmesh	M	39	short	short	N
Zhen	F	21	short	long	N
Lin	F	53	short	long	Y
Hamza	M	45	short	short	N
Tony	M	40	tall	short	Y
Lee	M	32	short	long	Y
Gui	M	20	tall	long	Y

$(5 \times 2) (12 \times 4) / (4 \times 12) (12 \times 2) (9 \times 2)$
 AT THE
 $(23 \times 2) (7 \times 2) (9 \times 2) (6 \times 6) (9 \times 2)$
 SCENE
 $(8 \times 4) (2 \times 19) (6 \times 6) (2 \times 11)$
 LONG
 $(3 \times 8) (5 \times 2) (13 \times 2) (4 \times 11)$
 HAIR
 $23 \times 2) (4 \times 12) (4 \times 11) (2 \times 5) (12 \times 3) (8 \times 2) (2 \times 23)$
 STRANDS
 $(2 \times 27) (2 \times 9) (22 \times 2) (9 \times 2)$
 WERE
 $(2 \times 10) (19 \times 2) (5 \times 10) (3 \times 12) (2 \times 8)$
 FOUND

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

Name	Male/Female	Age	Height	Hair length	Glasses
Shen	F	32	tall	long	Y
Mark	M	20	tall	short	Y
Ken	M	22	short	short	Y
Earl	F	35	short	short	N
Jayne	F	18	short	long	Y
Ellis	F	27	tall	long	Y
Keating	M	30	tall	short	N
Edminton	M	17	short	short	N
Stu	F	22	tall	short	Y
M	M	30	tall	tall	N
Ort	M	30	tall	short	Y
Stana	F	12	tall	long	Y
Shun	F	33	short	long	Y
Ming-hua	M	40	short	long	N
Rag	M	27	short	short	N
Alasne	M	17	tall	short	Y
Tull	F	30	short	short	N
Daniel	M	32	short	short	Y
Enghit	F	20	tall	long	Y
Steve	M	20	short	short	N
Guang	M	31	tall	tall	Y
Dan Lee	F	30	tall	short	Y
Anna	F	19	short	long	Y
Shamrock	M	30	short	short	N
Zhen	F	21	short	long	N
Lin	F	53	short	long	Y
Hamas	M	15	short	short	N
Tony	M	40	tall	short	Y
Lee	M	32	short	long	Y
Gui	M	30	tall	tall	Y

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.

Clue 3

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 thief	24 didn't	40 the	19 long	96 dropped
78 glasses	46 wear	72 any	26 their	22 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
Shen	F	32	tall	long	Y
Mark	M	20	tall	short	Y
Ken	M	22	short	short	Y
Alan	F	35	short	short	N
Jayne	F	18	short	long	Y
Eric	F	27	tall	long	Y
Keating	M	38	tall	short	N
Symington	M	17	short	short	N
Stu	F	22	tall	short	Y
M	M	38	tall	tall	N
Ort	M	30	tall	short	Y
Stana	F	12	tall	long	Y
Shun	F	33	short	long	Y
Ming-hua	M	40	short	long	N
Rag	M	27	short	short	N
Alashe	M	17	tall	short	Y
Tull	F	30	short	short	N
Daniel	M	32	short	short	Y
Enghin	F	28	tall	long	Y
Steve	M	28	short	short	N
Gregory	M	31	tall	tall	Y
Darlan	F	38	tall	short	Y
Anna	F	19	short	long	Y
Blumsted	M	37	short	short	N
Zhen	F	21	short	long	N
Lin	F	53	short	long	Y
Hamas	M	45	short	short	N
Tony	M	40	tall	short	Y
Lee	M	32	short	long	Y
Gui	M	38	tall	tall	Y

Clue 3

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

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

Name	Male/Female	Age	Height	Hair length	Glasses
Shen	F	32	tall	long	Y
Mark	M	20	tall	short	Y
Ken	M	22	short	short	Y
Earl	F	35	short	short	N
Jayne	F	18	short	long	Y
Eric	F	27	tall	long	Y
Keating	M	30	tall	short	N
Edmonton	M	17	short	short	N
Stu	F	22	tall	short	Y
M	M	28	tall	tall	N
Ort	M	30	tall	short	Y
Stana	F	12	tall	long	Y
Shun	F	33	short	long	Y
Ming Hui	M	18	short	long	N
Rag	M	27	short	short	N
Alashe	M	17	tall	short	Y
Tull	F	30	short	short	N
Daniel	M	32	short	short	Y
Enghit	F	20	tall	long	Y
Steve	M	28	short	short	N
Guang	M	31	tall	tall	Y
Dan Lee	F	30	tall	short	Y
Anna	F	19	short	long	Y
Shamuel	M	29	short	short	N
Eric	F	21	short	long	N
Lin	F	53	short	long	Y
Heman	M	15	short	short	N
Tony	M	40	tall	short	Y
Lee	M	32	short	long	Y
Gui	M	28	tall	tall	Y

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.

Clue 4

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

$302 + 1000$

$2190 - 1000$

$3291 + 1000$

$7821 - 1000$

$6219 + 1000$

8821 (lost)

4191 (his)

4290 (did)

1302 (the)

4020 (male)

7219 (a)

4291 (thief)

6821 (was)

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	Age	Height	Hair length	Glasses
Shen	F	32	tall	long	Y
Mark	M	20	tall	short	Y
Ken	M	22	short	short	Y
Alan	F	35	short	short	N
Jayne	F	18	short	long	Y
Ellis	F	27	tall	long	Y
Keating	M	30	tall	short	N
Edmonton	M	17	short	short	N
Stu	F	22	tall	short	Y
M	M	30	tall	tall	N
Ort	M	30	tall	short	Y
Stana	F	12	tall	long	Y
Shun	F	33	short	long	Y
Ming Wu	M	18	short	long	N
Rag	M	27	short	short	N
Atashe	M	17	tall	short	Y
Tull	F	30	short	short	N
Daniel	M	32	short	short	Y
Enghet	F	20	tall	long	Y
Steve	M	20	short	short	N
Gregory	M	31	tall	tall	Y
Darlan	F	30	tall	short	Y
Anna	F	19	short	long	Y
Blumstein	M	30	short	short	N
Eliot	F	21	short	long	N
Lin	F	53	short	long	Y
Heman	M	15	short	short	N
Tony	M	40	tall	short	Y
Lee	M	30	short	long	Y
Gri	M	30	tall	tall	Y

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.

Clue 5

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

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

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

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

$\frac{8}{16}$ the	$\frac{4}{8}$ years	$\frac{12}{20}$ after	$\frac{2}{8}$ forty
$\frac{5}{10}$ as	$\frac{16}{32}$ found	$\frac{2}{4}$ thief	$\frac{8}{10}$ twenty
$\frac{2}{3}$ fifty	$\frac{4}{6}$ was	$\frac{7}{10}$ dragon	$\frac{4}{16}$ thirty
$\frac{8}{12}$ and	$\frac{6}{24}$ head	$\frac{3}{12}$ between	$\frac{6}{9}$ 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 $\frac{3}{4} = ?/12$ $4 \times 3 = 12$ so..... $3 \times 3 = 9$ --- $9/12$

Name	Male/Female	Age	Height	Hair length	Glasses
Shen	F	32	tall	long	Y
Mark	M	20	tall	short	Y
Ken	M	22	short	short	Y
Earl	F	35	short	short	N
Jayne	F	18	short	long	Y
Ellie	F	27	tall	long	Y
Rooney	M	30	tall	short	N
Lyndon	M	17	short	short	N
Stu	F	22	tall	short	Y
M	M	30	tall	short	N
Orin	M	30	tall	short	Y
Stana	F	12	tall	long	Y
Shun	F	33	short	long	Y
Ming Wei	M	18	short	long	N
Rag	M	27	short	short	N
Alashe	M	17	tall	short	Y
Tull	F	30	short	short	N
Daniel	M	32	short	short	Y
Enghit	F	20	tall	long	Y
Steve	M	20	short	short	N
Gregory	M	31	tall	short	Y
Darlan	F	30	tall	short	Y
Anna	F	19	short	long	Y
Blairwood	M	30	short	short	N
Shen	F	21	short	long	N
Lin	F	53	short	long	Y
Heman	M	45	short	short	N
Tony	M	40	tall	short	Y
Lee	M	30	short	long	Y
Gri	M	30	tall	short	Y

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

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

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

$\frac{8}{16}$ the	$\frac{4}{8}$ years	$\frac{12}{20}$ after	$\frac{2}{8}$ forty
$\frac{5}{10}$ as	$\frac{16}{32}$ found	$\frac{2}{4}$ thief	$\frac{8}{10}$ twenty
$\frac{2}{3}$ fifty	$\frac{4}{6}$ was	$\frac{7}{10}$ dragon	$\frac{4}{16}$ thirty
$\frac{8}{12}$ and	$\frac{6}{24}$ head	$\frac{3}{12}$ between	$\frac{6}{9}$ old

So what age is our criminal between?

Name	Male/Female	Age	Height	Hair length	Glasses
Shen	F	32	tall	long	Y
Mark	M	20	tall	short	Y
Ken	M	22	short	short	Y
Earl	F	35	short	short	N
Jayne	F	18	short	long	Y
Ellie	F	27	tall	long	Y
Keating	M	38	tall	short	N
Edmonton	M	17	short	short	N
Stu	F	22	tall	short	Y
Max	M	30	tall	short	N
Orin	M	30	tall	short	Y
Stana	F	12	tall	long	Y
Shun	F	33	short	long	Y
Ming Hui	M	18	short	long	N
Rag	M	27	short	short	N
Alastair	M	17	tall	short	Y
Tull	F	30	short	short	N
Daniel	M	32	short	short	Y
Enlight	F	20	tall	long	Y
Steve	M	28	short	short	N
Garling	M	31	tall	short	Y
Darlan	F	30	tall	short	Y
Anne	F	10	short	long	Y
Blumstein	M	30	short	short	N
Eliot	F	21	short	long	N
Earl	F	35	short	long	Y
Herman	M	15	short	short	N
Tony	M	40	tall	short	Y
Leo	M	38	short	long	Y
Gri	M	38	tall	short	Y

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>

