

# Teacher Notes

The Maths Mystery Games are a fun way to work on maths skills in real-life situations with the added bonus of catching a criminal and solving a crime!

The games can be done clue by clue over a number of days/lessons, or as a whole lesson at the end of a week or unit.

The games are designed to bring a class together as all children work on the same game. However, differentiation can be done in a number of ways:

- Buddy up children with different abilities, encouraging them to work as a team and listen to everyone. Give higher ability children mentoring roles or team leader roles in groups, responsible for making sure everyone is included.
- Allow children to use the **UKS2 Maths Hint Revision Cards** to work with during the game.
- Have some children work with an adult.
- Allow some children to use calculators.
- Work together as a class and give different children or table groups different parts to work on, pooling ideas and working through it together.
- There are also LKS2 maths mystery games available if you prefer lower differentiation, bearing in mind that the subject matter and clues will not be the same.

# The Mystery of the Guilty Game Show Gangster

It's the filming of the second series of a game show called '30 to 1 Ninja Millionaire Supreme', where thirty contestants are whittled down to one over 4 heats of quiz questions, physical and mental challenges and dares. The winner receives one million pounds!

However, during the final minutes of filming, the host, Philip Tidybeard, announced the winner and presented the locked case of £1 000 000... only to find that the case was empty!

Someone has stolen one million pounds. But how, with a lock on the case and security guards surrounding it? You are the chief detective in charge of the case, as you just happened to be in the audience on a rare day off.

As most things were recorded by the TV cameras, you have determined that the thief must be one of the contestants. Solve the following clues to find out who was the perpetrator.

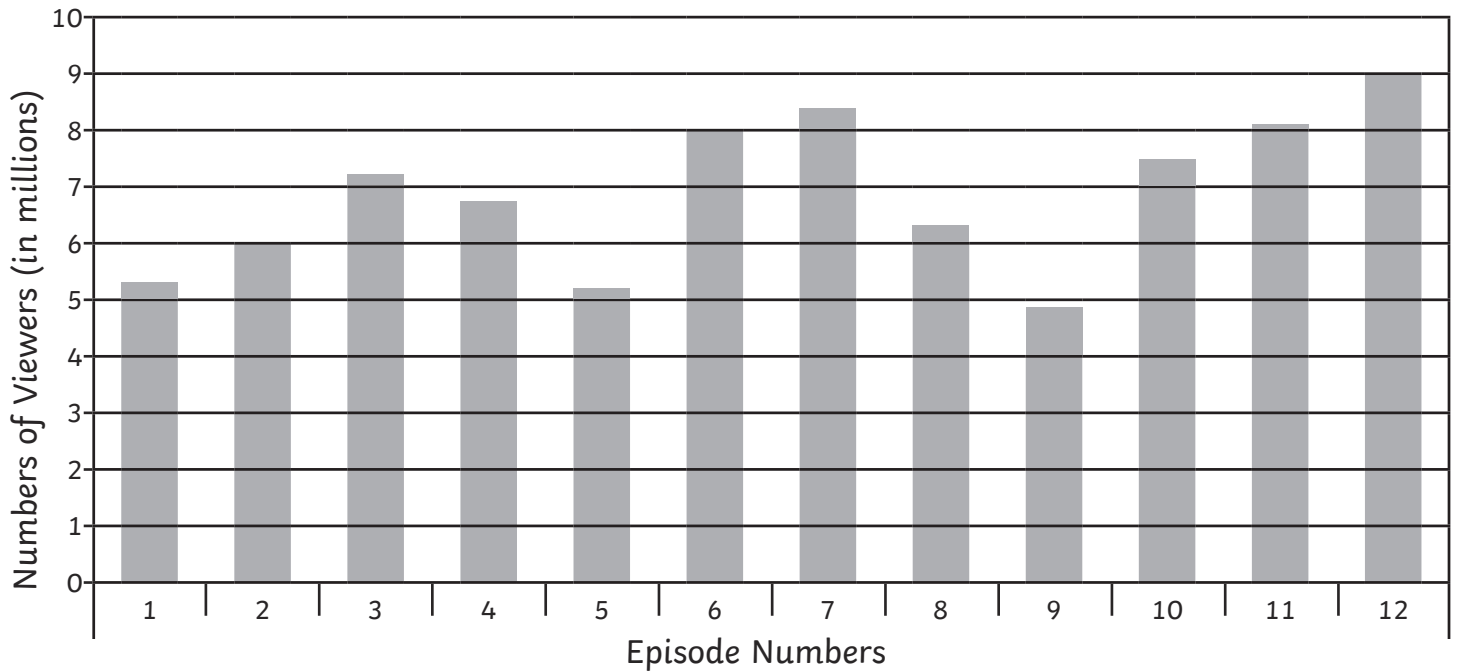
Good luck - the producers of '30 to 1 Ninja Millionaire Supreme' are depending on you!

Name	Contestant number	Podium number	Got to heat number	Points scored	Age
Alice Ask	7	2	3	95	22
Andy All-Star	13	5	1	55	44
Bjorn Blockbust	21	3	4	73	21
Belle Blankety-Bowen	1	1	2	49	25
Crystal Chegwin	17	6	1	32	35
Charlie Catchphrase	3	4	3	63	33
Diane Deal	24	2	4	91	49
Dara Dustybin	14	5	1	60	39
Eesha Egghead	8	1	4	83	23
Edward Eliminate	26	6	3	84	41
Finola Fortune	22	3	2	39	27
Flynn Forsyth	2	2	1	57	31
Gary Gold	28	5	4	66	30
Gillian Guess	15	4	2	90	44
Helena Hunted	9	1	3	70	25
Harry Holness	29	1	1	75	27
Iolanthe Impossible	6	6	4	46	29
Ivan Imaceleb	25	2	3	87	25
Jane Jungle	19	6	2	59	31
Jimmy Jeopardy	11	4	4	46	32
Kyo Krypton	27	3	3	88	35
Katie Knockout	16	6	4	69	32
Lisa Lucky	5	3	1	41	29
Leon Losealot	30	5	4	57	41
Marie Maze	20	2	2	38	24
Matt Mindmaster	10	4	3	79	33
Nadia Ninja	23	5	4	72	42
Najeeb Nodeal	18	3	2	80	38
Omar O'Connor	12	1	2	69	41
Orla Outwit	4	4	1	50	31

# Clue 1

You and your team have looked at the small opportunities that people had to leave the filming area, and have spotted a pattern that gives them a clue about the contestant numbers.

Here is a graph of the audience ratings for series 1 of the show. Each of the answers to the questions below gives a number that corresponds to a letter of the alphabet, e.g. 1 = A, 2 = B, and so on. The message you find should tell you something about the thief's contestant number.



1st letter = How many viewers (in millions) did episode 12 have?

2nd letter = Round to the nearest million and then add up the total viewers (in millions) for episodes 3, 5 and 6.

3rd letter = Which episode had 4.9 million viewers?

4th letter = Round to the nearest million and add up the total viewers (in millions) for episodes 5, 9 and 12.

5th letter = Add up the episode numbers with the viewers of 7.5 and 5.2 million viewers.

6th letter = Round to the nearest million then find the difference (in millions) between episodes 1 and 12.

7th letter = Which episode had 6.8 million viewers?

Message \_\_\_\_\_

# Clue 2

On analysis of the empty case, the officers found DNA so were able to establish something. Solve the following fraction calculations. Then use the numerator of each answer to give you a letter in the alphabet, e.g. 1 = A, 2 = B, and so on. This should reveal a clue!

$$\text{a) } \frac{3}{4} - \frac{2}{4} = \frac{\quad}{4}$$

$$\text{h) } \frac{8}{8} - \frac{3}{12} = \frac{\quad}{24}$$

$$\text{b) } \frac{6}{8} + \frac{1}{8} = \frac{\quad}{8}$$

$$\text{i) } \frac{6}{16} + \frac{2}{8} = \frac{\quad}{32}$$

$$\text{c) } \frac{11}{10} - \frac{6}{10} = \frac{\quad}{10}$$

$$\text{j) } \frac{2}{3} - \frac{2}{9} = \frac{\quad}{18}$$

$$\text{d) } \frac{1}{12} + \frac{3}{12} = \frac{\quad}{12}$$

$$\text{k) } \frac{1}{4} + \frac{3}{6} = \frac{\quad}{12}$$

$$\text{e) } \frac{25}{20} - \frac{10}{20} = \frac{\quad}{20}$$

$$\text{l) } \frac{17}{12} - \frac{4}{6} = \frac{\quad}{24}$$

$$\text{f) } \frac{17}{18} + \frac{5}{18} = \frac{\quad}{18}$$

$$\text{m) } \frac{1}{5} + \frac{6}{20} = \frac{\quad}{40}$$

$$\text{g) } \frac{8}{5} - \frac{3}{5} = \frac{\quad}{5}$$

$$\text{n) } \frac{9}{10} - \frac{1}{15} = \frac{\quad}{30}$$

Message \_\_\_\_\_

# Clue 3

You have worked out the time frame during which the money was stolen, and this has told you where in the studio it could have happened.

Solve this clue by following the compass directions on the grid below in the order they are given to spell out something about the criminal.

Start the first direction from the start square and then all the other directions continue from where you finish the previous one.

<b>A</b>	<b>N</b>	<b>D</b>	<b>X</b>	<b>M</b>
<b>R</b>	<b>J</b>	<b>T</b>	<b>B</b>	<b>G</b>
<b>V</b>	<b>U</b>	<b>Start</b>	<b>O</b>	<b>I</b>
<b>C</b>	<b>F</b>	<b>P</b>	<b>W</b>	<b>L</b>
<b>K</b>	<b>Y</b>	<b>H</b>	<b>S</b>	<b>E</b>

Message \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

	Letter
N1	
S3	
E2	
NW1, W1	
NE1, E1	
S1	
NW3, S3	
SE1, E2	
W1, NW3	
E1, SE3	
W1, NW3	
E3, S3	
NW2, SW1	
N1, E3	
W2, NW1	
E1, SE3	
N2, NW2	
E2	
SW1, S1	
W3, N1	
E4, SW3, E3	
W2, N3	
S3	
NW2, N2	
E1	
S4, E2	
W1, NE2	
NW2, E1	
SW1	
SW2, SE1	

# Clue 4

Below is the shooting schedule for the gameshow.

Work out how much time during the day was spent recording.

The recording time in hours will give you the heat number reached by the thief.

Time	Activity
08:35 – 09:30	All competitors in makeup
09:00 – 09:30	Host in makeup
09:30 – 10:05	Rehearsals
10:05 – 10:50	Recording Heat 1
10:50 – 11:20	Break
11:20 – 11:57	Recording Heat 2
11:57 – 13:55	Break for lunch
13:55 – 15:25	Rehearsals
15:25 – 16:03	Recording for Heat 3
16:03 – 16:17	Break
16:17 – 17:05	Recording for Heat 4
17:05 – 17:15	Break
17:15 – 17:27	Recording of Results and Prize Giving
17:27 – 18:00	De-rig

The heat number reach by the thief was \_\_\_\_\_

# Clue 5

The officers have measured just how far each podium was from the money case during the question rounds, in order to see what opportunity the contestants had to get to the money.

The mean of each of these distances will give the podium number the culprit used.

Podium Number	Distance from Money
1	2.2m
2	3.2m
3	2.7m
4	2.9m
5	3.6m
6	3.4m

The culprit was standing at podium \_\_\_\_\_



# The Confession

When the culprit was finally caught, you discovered that they had impersonated a security guard before the show and stolen the money before the show had actually started! Now the money has been recovered, the thief had this to say...

×	12	9	7	3	20	6	8	4	30	5
10	O	M	@	R	Q	V	N	A	L	)
5	V	F	:	C	#	R	A	(	@	=
4	B	E	G	-	N	H	D	W	O	+
7	"	!	Z	I	\	S	.	G	\$	:
9	U	[	!	☹	T	☺	Y	E	<	F
100	K	/	£	L	&	J	%	>	P	'
3	E	☹	I	~	V	,	H	-	M	C
8	]	Y	.	H	*	B	X	D	?	A
12	'	U	"	E	?	Y	"	B	;	V
6	Y	☺	S	,	O	E	B	H	T	R

21	600	108	42	180	16	40	80	180	36	32

180	120	48	36	120	80	36	21	80	40

90	21	300	300	21	120	80	63

# Answers

## Clue 1:

### IT IS ODD

1st letter = 9 = I

2nd letter = 20 = T

3rd letter = 9 = I

4th letter = 19 = S

5th letter = 15 = O

6th letter = 4 = D

7th letter = 4 = D

## Clue 2:

### AGED OVER THIRTY

(1, 7, 5, 4, 15, 22, 5, 18, 20, 8, 9, 18, 20, 25)

## Clue 3:

The pilferer scored more than sixty.

You might want to give some of the answer letters to the children to check they are on track.

## Clue 4:

Total time = 3 hours (times: 45', 37', 38', 48' and 12')

Therefore the thief got to heat 3.

## Clue 5:

Gives the podium number 3

(18 ÷ 6).

**The thief was Kyo Krypton.**

## The Confession:

I just wanted to be one in a million!