

UNIVERSITY OF CAMBRIDGE

Nurturing Successful Mathematicians

Welcome
We will get started in a few moments

We will be recording today's event so please turn off your microphone and camera

nrich.maths.org/code-of-conduct

nrich.maths.org
© University of Cambridge

1

UNIVERSITY OF CAMBRIDGE

Nurturing Successful Mathematicians

NRICH Live - Secondary
6 October 2020

Charlie Gilderdale
Liz Woodham

nrich.maths.org
© University of Cambridge

2

nrich.maths.org
© University of Cambridge

3

Five Strands of Mathematical Proficiency

Kilpatrick, J. et al (2001) *Adding It Up: Helping Children Learn Mathematics*

nrich.maths.org
© University of Cambridge

4

Understanding - Maths is a network of linked ideas. I can connect new mathematical thinking to what I already know and understand.

Tools - I have a toolkit that I can choose tools from to help me solve problems. Practising using these tools helps me become a better mathematician.

Problem solving - Problem solving is an important part of Maths. I can use my understanding, skills and reasoning to help me work towards solutions.

Reasoning - Maths is logical. I can convince myself that my thinking is correct and I can explain my reasoning to others.

Attitude - Maths makes sense and is worth spending time on. I can enjoy Maths and become better at it by persevering.

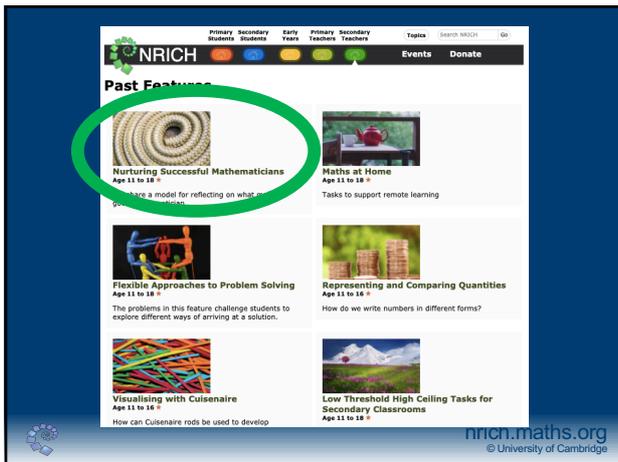
Adapted from Kilpatrick, J. et al (2001) *Adding It Up: Helping Children Learn Mathematics*

nrich.maths.org
© University of Cambridge

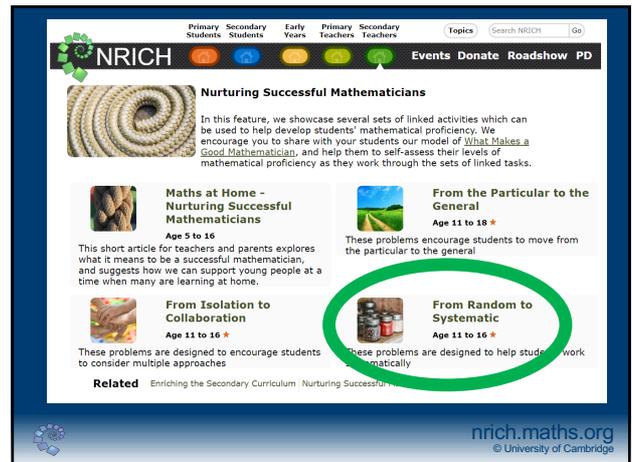
5

nrich.maths.org
© University of Cambridge

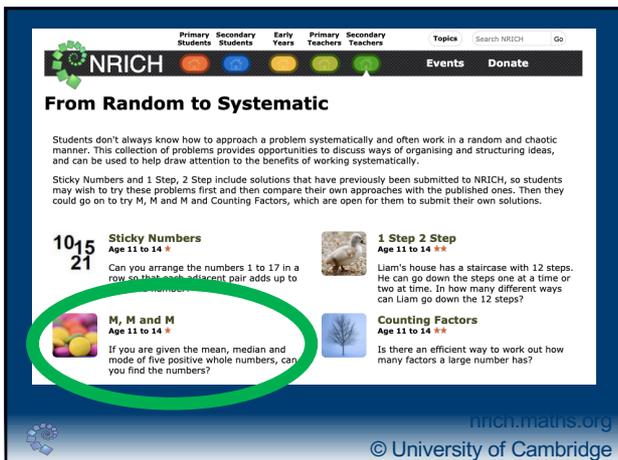
6



7



8



9



10

M, M and M

4, 2, 14, 8, 2

Mode =
Median =
Mean =

nrich.maths.org
© University of Cambridge

11

M, M and M

Can you find other sets of 5 positive whole numbers with:
Mode = 2 Median = 4 Mean = 6

How many sets are there altogether?
Post your answer in the chat

nrich.maths.org
© University of Cambridge

12

M, M and M

How might students convince each other that they have found all the possible sets?

Feel free to share suggestions in the chat

13

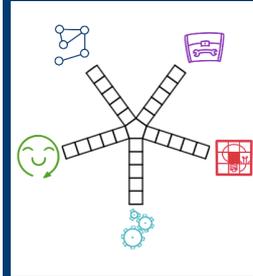
Understanding - Maths is a network of linked ideas. I can connect new mathematical thinking to what I already know and understand.

Tools - I have a toolkit that I can choose tools from to help me solve problems. Practising using these tools helps me become a better mathematician.

Problem solving - Problem solving is an important part of Maths. I can use my understanding, skills and reasoning to help me work towards solutions.

Reasoning - Maths is logical. I can convince myself that my thinking is correct and I can explain my reasoning to others.

Attitude - Maths makes sense and is worth spending time on. I can enjoy Maths and become better at it by persevering.



Adapted from Kilpatrick, J. et al (2001) *Adding It Up: Helping Children Learn Mathematics*

14

15

16

Multiple Surprises

Can you find **three consecutive numbers** where:
the first is a multiple of 2
the second is a multiple of 3
the third is a multiple of 4?

Can you find more than one set?
Feel free to post a suggestion in the chat

17

Multiple Surprises

18

Multiple Surprises

What if the first is a multiple of 3
the second is a multiple of 4
the third is a multiple of 5?

What if the first is a multiple of 4
the second is a multiple of 5
the third is a multiple of 6?

19

Multiple Surprises

Is there a way to find sets of five consecutive numbers which are multiples of 2, 3, 4, 5 and 6 (in this order)?

20

Multiple Surprises

Can you use what you have discovered to help you find a few sets of ten consecutive numbers in which:

the first is a multiple of 1
the second is a multiple of 2
the third is a multiple of 3
the fourth is a multiple of 4
the fifth is a multiple of 5

the sixth is a multiple of 6
the seventh is a multiple of 7
the eighth is a multiple of 8
the ninth is a multiple of 9
the tenth is a multiple of 10?

21

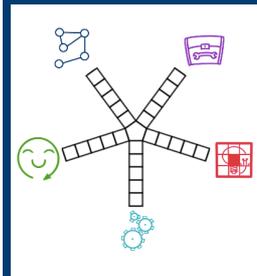
Understanding - Maths is a network of linked ideas. I can connect new mathematical thinking to what I already know and understand.

Tools - I have a toolkit that I can choose tools from to help me solve problems. Practising using these tools helps me become a better mathematician.

Problem solving - Problem solving is an important part of Maths. I can use my understanding, skills and reasoning to help me work towards solutions.

Reasoning - Maths is logical. I can convince myself that my thinking is correct and I can explain my reasoning to others.

Attitude - Maths makes sense and is worth spending time on. I can enjoy Maths and become better at it by persevering.



Adapted from Kilpatrick, J. et al (2001) *Adding It Up: Helping Children Learn Mathematics*

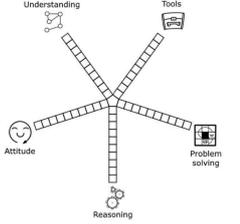
22

23

24

nrich.maths.org/14718/note

	Understanding	
	Tools	
	Problem solving	
	Reasoning	
	Attitude	



Adapted from Kilpatrick, J. et al (2001) *Adding It Up: Helping Children Learn Mathematics*

nrich.maths.org
© University of Cambridge

25

#nrichLIVE

@nrichmaths

nrich.maths.org/newsletter

nrich.maths.org/14759

<https://tinyurl.com/secondary-nrich-live-feedback>

 nrich.maths.org
© University of Cambridge

nrich.maths.org
© University of Cambridge

26