



Going deeper to develop whole class reasoning

9th October 2019
Tower Hamlets CPD Centre

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NRICH Professional Development

- Being a learner
- Reflecting on the impact tasks have in your classroom
- Personalising for your setting



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"If we create a culture where every teacher believes they can improve, not because they are not good enough, but because they can be even better, there is no limit to what we can achieve."

Dylan William,
University of London

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2019-20 Project Overview

Going deeper to develop whole class reasoning.

9 Oct – setting the NRICH scene
26 November, 4 February, 17 March,
19 May and 23 June

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Research element

Share back at school, to be signed up at a future date.

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Dissemination planning

Choose an option from the following:

- A handout for staff
- 10mins input at a team meeting/staff meeting
- Meeting with a parallel colleague in your phase/year.



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Cuisenaire task

How many different trains can you make with a length of 12?

How many different trains can you make with a length of 12 and exactly 3 carriages?

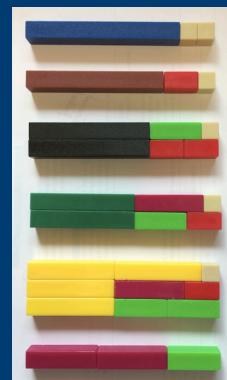
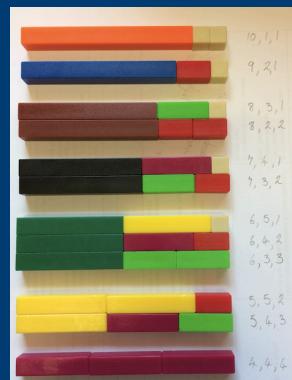
How many of these 3 carriage trains of length 12 can be turned into triangles?

Repeat with trains of length 11...



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Reasoning Mathematically (You On Your Own time)

- What do you think reasoning mathematically is/involves?
- 5 mins
- Reflection content is for your eyes only



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Getting to know you

5 mins to complete for your school (in consultation with your colleague).

Potential prompts are on the sheet, but feel free to add anything additional that you think is relevant.



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NRICH bingo

Published solutions	Live tasks	Submitting a solution
Teachers' resources	id number	Primary curriculum linked
Star rating	Suggested age range	Hiding menu



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Cubies (13872)

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Cubies

Age 7 to 11 **

This problem has been designed to work on in a group of about four. For more details about how you might go about doing this, please read the [Teachers' Resources](#).

Cubies are a race of tiny people who live on an island in the middle of the Indian Ocean. The island they live on is very small and they have to live in very tall buildings. They have to live in these tall buildings so they all have enough space to live on the island.

Scientists have been measuring the Cubies' population over the years but Cubies are very shy. When humans approach them they run away. The scientists have recorded snippets of information in this table. This information will help you investigate the structure of the building and answer the following questions to help the scientists:

- How many flats are there on each floor of the building?
- How many Cubies are there in each family? For example, how many families of two are there? Perhaps a parent and a child Cubie? (We call these families of two.) How many families of three Cubies are there? Can you keep going until you know exactly how many families of each size there are?
- Which families live on which floors? For example, how many families of two Cubies live on Floor A? What about Floor B? Can you keep going?

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Overheard Reasoning



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Reasoning in the room

Thinking back to your writing about mathematical reasoning earlier today. What questions do you have about it? What questions do you think your colleagues might have?

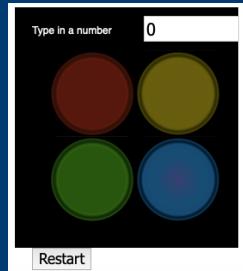


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Light the Lights (7044)

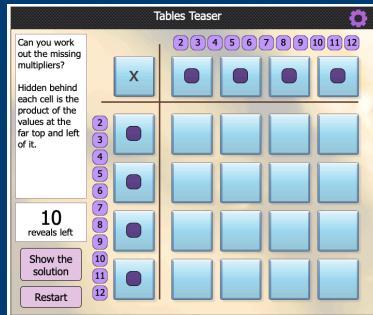
Can you identify the reasoning in the work you've been doing?



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Tables Teaser (14242)



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Mystery Matrix (1070)

x					
	32		40		
		22			
		15			27
		24			
			42		



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Overheard Reasoning



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Back to bingo!

- Full house?
- Talk on your tables to fill in any gaps
- Any questions?



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Teacher Takeaway

- Try a task from today in your setting (and be prepared to talk about it next time – with work/photos etc.)
- Jot down some things in your journal about the task you tried and things you noticed
- Follow up/make preparations for your chosen dissemination method



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References

Ollerton, M., Williams, H. and Gregg, S. (2017) Cuisenaire – From Early Years to Adult.



Cuoco, A., Goldenberg, E. P. and Mark, J. (1996) 'Habits of Mind: An Organising Principle for Mathematics Curricula.' *Journal of Mathematical Behavior* Edition 15 P375-402

Ruthven, K. (1998) An Exploratory Approach to Advanced Mathematics *Educational Studies in Mathematics* Edition 20 P449-467



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