

## Keeping curiosity alive through fun family maths

### Panellists:

Lucy Preston – Programme Director, Learning with Parents

Dr Ems Lord – Director, NRICH

Liz Woodham – Primary Coordinator, NRICH

[Learning with Parents](#) is a charity working to ensure that every child is supported to achieve their potential at home. The Learning with Parents programme is run in UK primary schools, motivating and empowering families to have enjoyable learning experiences together. Learning with Parents works to ensure all families are effectively supported, especially those facing the greatest barriers.

Through the programme, teachers set topics and hands-on activities for families to complete at home. Many of the maths topics include NRICH tasks, and with child-led videos, notifications and nudges for parents, teacher tracking and support, we are able to ensure that all families enjoy exploring learning at home.

[NRICH](#) is an innovative collaboration between the Faculties of Mathematics and Education at the University of Cambridge which focuses on problem solving and on creating opportunities for students to learn mathematics through exploration and discussion. NRICH provides thousands of free online mathematics resources for ages 3 to 18.

### Keeping curiosity alive through fun family maths

During the session we will explore the importance of fun and curiosity in maths home learning, the link between attainment and curiosity, and some tips to encourage exploration at home.

Throughout we will also showcase some NRICH activities that encourage curiosity. These have been chosen as being accessible to all families. They're low resource and do not require specific maths knowledge for getting started.

### Barriers to engagement and parent voice

Hearing from families and teachers is key to our work at Learning with Parents. When we survey teachers and families about the barriers to engaging in learning, there are some commonalities. However routinely we hear parents say they are worried their child will not want to engage. With busy lives, it is key to ensure that those interactions we are encouraging families to do at home, are positive moments for both. Putting fun and curiosity at the centre of these supports this.

### Activity – [The Eightness of Eight](#)

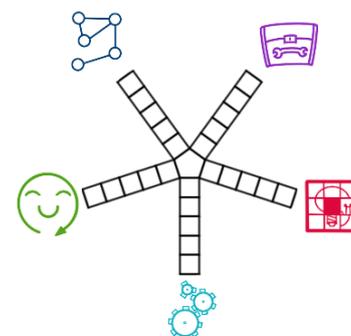
Prompt questions for families could include what stays the same, and what changes. You could also ask families to think about how they could create a similar video to explore the number 12. Being inspired by an example to create their own is a great way to spark curiosity.



## What do we know about curiosity and attainment in maths?

Ems explains how the 'rope model' has informed the creation of NRICH tasks for nurturing successful mathematicians. You can find more information (and a child-friendly version!) [here](#). There are 5 strands described: **Understanding; Tools; Problem Solving; Reasoning; and Attitude.**

Encouraging curiosity can foster a positive attitude towards maths and problem solving skills. As highlighted in the last activity, we can use tasks like this to move children's learning from problem solving to problem posing. As the research suggests, we can see children *really* understanding a topic, when they're able to pose their own questions.



So, what do we know about curiosity and children's learning? Participants were encouraged to imagine a line graph of their own curiosity from Primary school to present day – what would this look like? The OECD reports that curious children tend to do better in maths and that, unfortunately, this curiosity drops dramatically between Primary and Secondary. Everyone is encouraged to think about their own role in supporting this continuation of curiosity. This is so important for their learning, but also for their future opportunities and prospects. [Here's](#) the link to the report from the OECD which describes the link between curiosity and maths.

### Activity – [Little Man](#)



Using a simple image and story to encourage families to pose further and bigger questions. How tall is the little man in the image, what can you see that's twice his size, how big to you think his mug is, how many of his mugs could you fit in a big mug?! Our role as teachers is to think about children's experiences to develop their learning. This task helps hooks families in by combining imagination and maths, and allows families to explore the maths using the home environment, having a hands-on approach, and working together.

### Encouraging Exploration – Learning with Parents

Motivating and empowering families go hand in hand for us at Learning with Parents. To help ensure activities are inclusive, it's so important to ensure resources are accessible and that families feel comfortable using them. Encouraging families to choose their own resources can also help families have a greater sense of agency and enjoy being creative with their resources.

You can read more about our advice on homework to support all parents in our blog 'Is your homework policy supporting all parents?' [here](#)

### What are the key steps for families nurturing more curious learners?

Sometimes understanding what a 'curious learner' is can be hard. As teachers, we understand what progression looks like in so many other areas of the curriculum, but curiosity can be harder to identify. NRICH have developed a curiosity scale with schools exploring some of the resources Liz shared today. You can find this [here](#). In their work they saw how this starts with noticing, then goes onto 'I wonder' questions. Asking children, 'what would a mathematician notice?' can also help prompt children's thinking.

**Activity – [Five Steps to 50](#)**

This task promotes curiosity in another way. This activity enables children to generate lots of examples by rolling the dice, they can then start noticing patterns and posing questions with their family members. For example, which numbers worked and why?

**You can find lots of NRICH's 'Being Curious' Primary tasks [here](#)**

**Final comments**

The three NRICH activities have all been chosen for their potential for nurturing curiosity. The first is encouraging learners to be inspired by examples to create own. Little Man helps bring imagination into their exploration and Five Steps to 50 prompts the why questions – why did it work this time but not this?

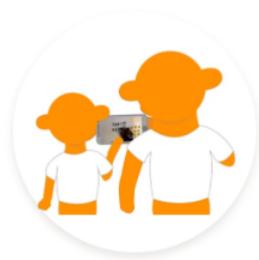
Like our Learning with Parents activities, these are all activities that can be easily enjoyed and explored at home, and we encourage you to have a go with your class. For further support on encouraging families to engage at home, get in touch about our programme.

**Learning with Parents programme uses our own, as well as NRICH, activities. These are embedded within a programme of support and on an accessible platform to ensure that through notifications and nudges for parents, and clear child-led videos to support, that even those facing the greatest barriers can enjoy learning at home.**



**Set a topic for your class**

Schedule curriculum-aligned topics from Early Years to Year 6. Families are sent a child-led video and hands-on activities to explore at home.



**Families learn together**

Parents and children watch the video and complete the activities offline. Activities are open-ended and accessible for everyone.



**See their engagement**

Keep track of engagement through the register view and families' comments and photos. Pupils are rewarded with stickers, certificates and items for their Mathscot character.

If you want to find out more, you can email [hello@learningwithparents.com](mailto:hello@learningwithparents.com)