

# Cooking up a storm

With a kitchen for a classroom, Gemma Davis explains how child-centred learning has uncovered a love of science



A close look at the world

I looked across the kitchen table at my 5 year-old little girl, Marthy – lab coat on, sleeves rolled up, hair and face splattered in flour, chatting away to herself as she went into ‘sci comm presenter’ mode. This is now a familiar sight, but amazing to see nonetheless; with her head cocked to the side and an inquisitive eyebrow raised in anticipation...she let the stone drop. An explosion of flour rained down on her (and the kitchen floor) as she squealed in delight and shouted ‘Again, again!’ This has become a standard day in our house since we signed up to the Great Science Share for Schools (GSSfS).

## Unprecedented times – the 2020 lockdown

By the time the Great Science Share for Schools launched its adapted 2020 strategy, with weekly themes to inspire questions, we had become accustomed to being in lockdown as a result of the COVID-19 pandemic. As a family of mum, dad and daughter, we had set a home-learning timetable and had got into a rhythm of daily activities. What we noticed, however, was that teaching discrete subjects separately, without an overarching theme, resulted in what felt like very disjointed and hollow learning.

We were inspired by the GSSfS themes that were linked to different topic dates in the calendar, such as World Ocean Day and International Dawn Chorus Day. This helped us, as parents, to bring together concepts

## Celebrating the Royal Astronomical Society’s Birthday Week!

and skills from different subject areas under a single theme or topic appropriate to inspire a 5 year-old, and this approach made planning a whole lot easier and helped Marthy to make the fullest sense of the world around her.

I found that our participation in the GSSfS gave us the opportunity to refocus learning through a child-centred approach, harnessing Marthy’s natural curiosity in science. She is young in her age group and enjoys discovery, wonder and exploration – all things that Marthy is more than capable of doing naturally through play, mirroring the project-based pedagogy of early years learning.

## Science capital – #AskAQuestion

*‘Our research found that the more science capital a young person has, the more likely they are to aspire to continue with science post-16 and the more likely they are to have a “science identity”, for example to see themselves, and to be recognised by others, as being a “science person”’*



(Archer, 2018, p.6).

One of the most joyous moments that I witnessed happened whilst filming my daughter talking about Astronomy Week. After discussing the topic of the day, she turned and said ‘I know science now!’ Obviously, Marthy doesn’t have all the answers and has a great deal of science knowledge to gain, but this comment served to demonstrate how gifting her the freedom to shape her own learning experience had boosted her self-esteem and confidence.

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### More questions with the GSSfS Question Teller

We've read about science capital and have seen how it is not fixed and that, through our work together, this can be further developed. Participation in the GSSfS enabled my child to release her inquisitiveness; asking 'Why?' moved onto asking 'What if...?', 'How does...?' and 'I wonder why...?' as her awareness of the world broadened and she sought a greater understanding.

Each week, we printed off the GSSfS Question Makers, with Question Spinners, Question Hands, Question Frames and Question Tellers helping to stimulate questions. They were really accessible and helped to shape Marthy's natural inquisitiveness for asking questions into asking great scientific questions. As a parent, they gave me a tangible resource that focused on the asking rather than jumping straight into the doing.

### Beyond the worksheet to making strong learning connections

The GSSfS provided the opportunity to move away from countless worksheets and online lessons. We explored and investigated the weekly themes through a variety of methods, including using technology, creating films, conducting experiments, observations, monitoring, reading, baking, drawing, making, researching and writing.

Mornings were mainly literacy- and maths-focused, but I made sure that the tasks were connected to the week's theme, even if it just meant using a space person writing template or a spaceship number line. This linking together of everything we did during the week allowed for a much deeper level



### A myriad of learning, inspired through Marthy's questions

of learning and I began to notice the connections that Marthy was making between the different things she was learning.

Marthy began to talk about her learning over lunch and then at the tea table, and most nights I would say goodnight to her as she reeled off what she remembered from the day. Another highlight was the day that we were learning about the effect of global warming on ice caps. She was thoroughly immersed in measuring the water as the ice melted and giggling as the little sea creatures fell into the blue tinted water in our front garden. I looked over at her and she had a concerned look on her face: *'Mamma, if the ice melts, will Emperor penguins be able to keep the eggs warm like Steve did?'*

We were now in Environment Week, but we had learned about Emperor penguins already. We read books about penguins, labelled drawings, conducted experiments looking at how they glide, how they eat and how they keep warm, we took part in a live chat with a penguin expert, played Penguin Prey maths games outside on the pavement and watched a film about 'Steve', the Emperor penguin. My little girl is in Year 1 (age 6) and naturally I ask her each day after school, 'What did you learn today?'. It is often met with 'don't know' or 'can't remember', but not only was she able to remember so much knowledge about penguins, she was able to recall and apply that knowledge to a real life crisis and ask a scientific question about it. I was rather taken aback by this level of understanding, truth be told.

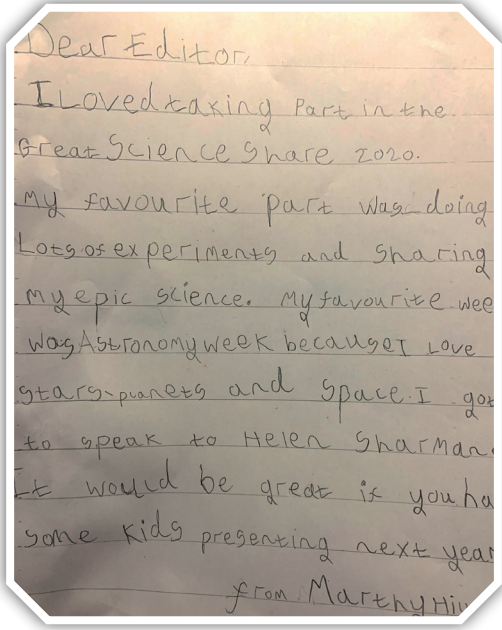


### Solar oven inspired by GSSfS Wonder Wednesday's live lessons with @DrChips

She was demonstrating awareness and connection, and without connection there is no interest, and interest always precedes authentic learning.

### A sense of community – learning from each other and shared learning

#AskAQuestion enabled us to seek answers in real time from real scientists, so even though we were in lockdown and socially distant from our community, we were able to feel part of the GSSfS community. Marthy loved sharing her learning in a variety of forms. It was a non-competitive and inclusive environment, as the emphasis was placed on asking questions, sharing knowledge and collaborative learning. She felt encouraged to communicate her scientific questions and investigations with new



**Marthy's reflections on GSSfS 2020**

audiences. This accorded Marthy much enthusiasm and confidence to share her findings, knowing that the other participants were interested. For the most part, I was learning alongside her – the community felt like a safe place to take risks, to ask questions, to get things wrong and to not worry about winning or losing.

**Where next for family science?**

If it wasn't for the lockdown, we would not have had the chance to take part in the GSSfS 2020 as fully as we did. As Marthy shared her science with others, she became even more determined to experiment and, as I started to record and share the experiments, her confidence grew and she would come to me to ask when she could film another experiment.

The GSSfS was the catalyst for a newly acquired love of all things science. When asked what she enjoyed most about the GSSfS, she replied 'everything, I loved everything. I had so much fun'. I am surprised by how much knowledge she has gained in such a short period of time. Marthy has started to recognise science in the world around her, making connections, linking topics and dilemmas, asking relevant scientific questions and using scientific language.

We were browsing through some cookie cutters on the Internet the other day and she casually stated: 'Look, Mamma, a DNA cookie cutter!' – and she was right! I hadn't even noticed. Science has become a part of her everyday life. Sometimes I witness her role-playing with her dolls as Freyja the Forensic Scientist; at bedtime I listen

outside her bedroom door as she chants out the correct order of the solar system (including Pluto as a dwarf planet); other days I will open her bedroom door to see her bird watching, engineering a zipline out of Lego or drawing her science lab.

The GSSfS 2020 has inspired a future scientist but, until then, we will be back next year sharing our science, asking questions and, most importantly, having fun with science as a family!

**References**

Archer, L. (2018) 'Engaging children with science: A "science capital" approach', *Primary Science*, (154), p.6  
A Science Capital approach to building engagement, UCL Institute of Education: <https://www.youtube.com/watch?v=NDuEZFRt59M>  
The Science Capital Teaching Approach teacher manual: [www.ucl.ac.uk/ioe-sciencecapital](http://www.ucl.ac.uk/ioe-sciencecapital)

**Gemma Davis** is Mummy to her daughter Marthy and a secondary trained teacher with a passion for increasing the science capital of all ages through engaging STEAM activities. Follow them @EdadventuresM#MarvellousMarthy

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