

ADHD AWARENESS MONTH



Different minds.
Same maths potential.

Insights from Dr Sam Parkes



Community
Engagement
NumberClub

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As part of ADHD Awareness Month, we're speaking with educators and innovators who are helping us rethink what inclusion really means in the maths classroom...and beyond.

This week, we caught up with Dr Sam Parkes. Sam has over twenty years' experience working in maths education as a teacher, subject and school leader, lecturer and school improvement specialist. Her research interests include mathematics teaching and evaluation, communities of practice, inclusive learning cultures, and **playful pedagogy**.

Sam has recently moved into EdTech in a Community Engagement role with NumberClub to further her mission to support all children and teachers to learn mathematics in **meaningful, accessible, connected** ways.

Q: From your experience, what are some of the most common barriers SEND pupils face in maths lessons? How do these challenges often show up in everyday classroom practice?

Sam: I'd say the most common barriers fall into two categories - cognitive, and these are usually around information processing and working memory and affective, relating to children's beliefs about themselves as learners and their feelings about maths. These will commonly show up in difficulty keeping up with the curriculum and retaining learning over time, and avoidant or anxious behaviours. The best research on effective maths interventions for students with learning disabilities, including those with Intellectual Disabilities (ID) and Dyscalculia, tells us a few non-negotiables that can help:

- **Systematic and Explicit Instruction:** Everything must be structured and clearly taught, with consistent, immediate feedback.
- **High-Intensity Practice:** Students need a massive volume of practice, with sessions frequently and precisely adapted to their current achievement level.
- **Mitigate Cognitive Load:** Working memory is often a challenge, so tasks must be tailored to reduce the amount of information a student has to remember at one time.

It's an incredible challenge for a busy classroom teacher to deliver that high volume of 1:1, perfectly adapted practice consistently. This is where high quality digital tools and games can be invaluable.

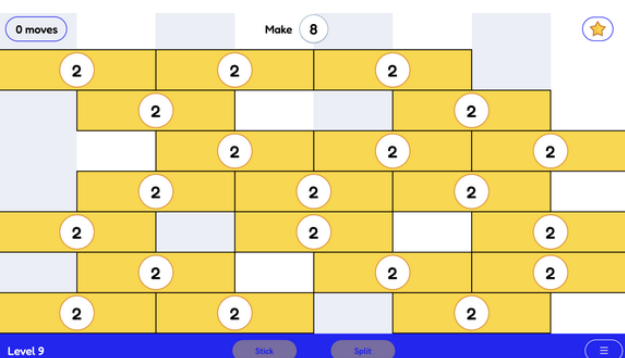
Ultimately, at NumberClub, our goal isn't just to help kids pass a test; it's to cultivate genuine mathematical capability and independence.

By blending solid, research-backed pedagogy with engaging, stress free digital practice, I believe we can help every student find their maths confidence.



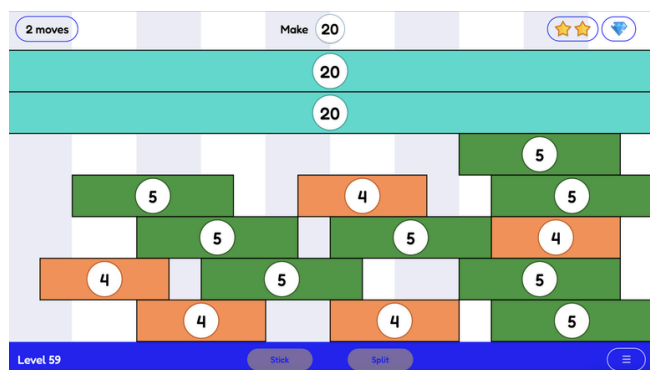
Q: NumberClub is built around maths games. What makes games a particularly powerful way to support SEND pupils?

Sam: Well firstly, it all depends on the game! For us, there are several factors that can make games-based learning powerful including an absence of speed pressure, no externally imposed competition, and foregrounding the visual/spatial representations. Players should have agency, the game should have a low threshold and high ceiling (LTHC), and it should offer repetition and cumulative challenge, giving plenty of opportunities to think mathematically. Most importantly, it needs to be rich and interesting, too many games for our SEND learners are overly simplified which can feel patronising and off-putting.



For pupils with SEND, and particularly those with ADHD, this design matters enormously. A well-structured game environment can remove the anxiety that often blocks learning, while still keeping pupils mentally stimulated.

The visual, interactive format helps sustain attention and reduces the cognitive load of decoding text-heavy instructions. Clear, consistent feedback loops allow pupils to focus on what's happening mathematically, not on managing distractions or social comparisons.



Our entire platform is intentionally built around educational games where mathematics is the star of the show. This is a crucial distinction. We deliberately reduce the elements of gamification like cute characters, expansive virtual worlds, or superficial rewards. Why? Because research shows that children learn better when the mathematical concept itself is the central focus, not an incidental component towards an unrelated goal. And also because we're trying to send a healthier message about maths itself, gamification reflects the assumption that maths is a bitter pill that needs to be sweetened. And just like the quick-fix of a sugar hit, it's not nourishing or sustaining. Our games give a really high dose of rich, nutritious thinking to help children build their mathematical muscle!

Q: Could you share an example of a specific game and explain how it helps pupils with attention, memory or understanding?

Sam: NumberClub's game, 'Stick and Split,' is a fantastic example of a game that embodies all of these principles, compatible with the best that is known about maths pedagogy. It models fundamental number composition and decomposition concepts, similar to using Cuisenaire rods. The game mechanics require users to 'stick' together or 'split' apart sticks of equal length and in doing so is highly effective for developing multiplicative reasoning and, ultimately, supporting retrieval of facts when they are needed.

This dynamic, visual representation allows students to literally see the quantities change and the operations take place, systematically reducing cognitive load and tapping directly into visual-spatial strengths.

Q: How can NumberClub's games help sustain focus and motivation?

Sam: For neurodivergent learners, the abstract world of numbers is often foggy. This is why visual tools are essential for bridging concepts. By providing the brain with something concrete to focus on, these methods leverage strengths like visual-spatial reasoning while mitigating deficits in working memory.

In the modern classroom, virtual manipulatives can be just as effective as their physical counterparts. They deliver that critical Concrete-Pictorial-Abstract (CPA) link at scale. And when they are coupled with all of the best principles of games-based learning, it's difficult to see what could be better for sustaining focus and motivation for learning maths!

Check out the [NumberClub website](#) and get in touch with Sam to find out more about how games-based learning can support your learners with SEND

#RethinkInclusion #RethinkMaths #ADHDAwarenessMonth