



# Embracing Neurodiversity

Introduction to Dyscalculia:  
Challenges & Strengths



Neurodiversity UK

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## Dyscalculia

Dyscalculia is a specific learning difference that affects an individual's ability to understand and work with numbers. Sometimes described as “maths dyslexia,” this condition is distinct but just as impactful as dyslexia or ADHD. Dyscalculia affects how the brain processes numerical information, patterns, and mathematical concepts.

It is estimated that around 3–6% of the population experiences dyscalculia, although it is often underdiagnosed, particularly in adults. Importantly, dyscalculia is not linked to intelligence people with this neurodivergence may excel in many other areas such as creativity, problem-solving, arts, and verbal reasoning.

## Common Challenges with Dyscalculia

Though experiences differ from person to person, some commonly reported struggles include:

- **Understanding numbers:** Difficulty recognising quantities, comparing values, or grasping basic number sense.
- **Mathematical concepts:** Challenges with learning times tables, performing calculations, or understanding mathematical symbols.
- **Sequencing:** Struggles with tasks involving order, such as following steps in equations or multi-step instructions.
- **Time management:** Difficulty estimating or keeping track of time, schedules, and deadlines.
- **Money handling:** Problems with managing finances, calculating change, or budgeting.
- **Direction and navigation:** Some individuals report difficulty with spatial awareness or following directions linked to numerical cues (like bus numbers or distances).

These challenges can affect everyday life as well as school and work, but with the right support, strategies can be built to manage them.



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## Strengths of Dyscalculia

Despite difficulties with numbers, many people with dyscalculia bring valuable strengths that shine in different areas:

- **Creativity:** Strong imaginative and artistic skills, often excelling in visual arts, design, or storytelling.
- **Problem-solving:** Ability to find unique, non-mathematical solutions to challenges using intuition and creativity.
- **Verbal reasoning:** Skilled communicators, often better at expressing ideas through language than numbers.
- **Attention to detail:** Strong focus on non-numerical tasks such as writing, design, or observation.
- **Empathy and perspective:** Often develop resilience and empathy for others due to lived experience of overcoming challenges



## Dyscalculia in Education

Schools often heavily emphasise numeracy, meaning dyscalculia can be particularly challenging in educational environments. Without proper recognition, learners with dyscalculia may experience anxiety, low confidence, or be wrongly labelled as “lazy” or “not trying hard enough.”

## Common Classroom Challenges

- Difficulty with maths lessons, particularly calculations and problem-solving.
- Struggles with timetables, sequencing, and following multi-step instructions.
- Difficulty completing timed tests or maths-related assignments.
- Maths anxiety leading to avoidance behaviours.

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## Strategies to Support Dyscalculia

- **Use of visuals and manipulatives:** Counters, beads, diagrams, and graphs make abstract maths more concrete.
- **Technology tools:** Calculators, maths apps, and interactive software.
- **Step-by-step teaching:** Breaking down instructions into smaller, manageable chunks.
- **Extra time for tasks:** Allow additional time for calculations, assignments, and tests.
- **Strength-based learning:** Encourage artistic, creative, or verbal skills to build overall confidence.



## Building inclusion in Education

Building inclusion for students with dyscalculia in schools involves understanding their unique challenges with numbers and math concepts and providing targeted, multisensory teaching methods using concrete materials like blocks and counters. Personalizing learning pace, offering regular practice, and connecting math to real-life contexts help deepen understanding.

Supportive strategies include explicit vocabulary teaching, using assistive technology, and fostering metacognitive skills like thinking aloud during problem-solving. Creating a positive classroom environment that celebrates effort and reduces math anxiety, alongside accommodations such as extra time and flexible assessment methods, is essential.

Collaboration with families and ongoing teacher training further build an inclusive culture where students with dyscalculia can thrive academically and develop confidence.

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## Dyscalculia in the Workplace

People with dyscalculia often face difficulties in jobs involving numbers, such as managing budgets, interpreting financial data, or working under strict deadlines. Tasks like entering pin codes, understanding schedules, or estimating time and quantities can also be challenging. These difficulties sometimes cause anxiety or stress, affecting confidence and job performance.

Despite numerical challenges, many people with dyscalculia bring unique strengths to the workplace. They often excel in creativity, strategic thinking, and problem-solving, offering innovative solutions and thinking outside the box. Strong verbal communication, empathy, and interpersonal skills help them collaborate effectively with colleagues. Many have heightened observational skills and an ability to see the bigger picture instead of getting lost in details.

Employers can support dyscalculic employees with digital tools like scheduling apps, budgeting software, and calculators to reduce the burden of numerical tasks. Clear visual instructions, chunked information, and templates for complex processes provide structure and clarity. Allowing extra time for tasks, avoiding on-the-spot number demands, and offering supportive training tailored to individual needs enhance confidence and productivity. Collaborative discussions between employee and manager about accommodations ensure tailored support rather than one-size-fits-all solutions.

Inclusive workplaces that embrace neurodiversity, including dyscalculia, foster innovation by valuing diverse thinking styles. By building environments where employees feel safe to share their unique cognitive approaches, teams benefit from a wider range of perspectives and problem-solving strategies. This openness not only improves employee wellbeing but also enhances creativity and adaptability, strengthening the organization's culture and competitive edge.



# Rethinking Dyscalculia

Dyscalculia is not a reflection of a person's intelligence or overall ability but rather how their brain processes numerical information differently. Research shows that people with dyscalculia often have differences in brain areas like the parietal cortex and frontal regions, which are involved in number processing and mathematical thinking. These differences mean they may take longer or use alternative brain pathways to understand and manipulate numbers, not that they lack cognitive capacity.

Creating inclusive environments that focus on strengths while addressing challenges ensures individuals with dyscalculia have equal opportunities to succeed and contributes to a richer, more diverse community of thinkers and problem-solvers. This perspective helps shift the stigma toward appreciation of neurological diversity and innovation.

**Produced by: Angela Beattie (BA, PGCE, MSc)**



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