

In Hertfordshire it has been agreed to define Developmental Dyscalculia broadly based on two widely recognised definitions, namely the DfES (2001) and the 2018 British Dyslexia Association Dyscalculia and Maths Learning Difficulties Committee (chaired by Peter Jarrett).

There is absolutely no doubt that some children have difficulties learning maths/numeracy skills for reasons other than inadequate educational experiences and/or profound/severe learning difficulties. While, it is recognised that children and young people can struggle with maths and numbers, this does not always mean that they have Developmental Dyscalculia (DD). It is important to note that the development of mathematical skills is hierarchical and cumulative, i.e. you need to grasp certain skills and concepts before you can learn others; gaps in learning can have a significant impact.

Other factors that can have an effect on learning maths/numeracy can include: lack of appropriate learning opportunities; maths anxiety; slow processing speed; poor literacy; and difficulties with working memory, visual processing, language processing, vision and hearing, and fine motor skills. This list is not exhaustive but indicates a range of difficulties that can impact on maths performance. It is important not to underestimate the impact these difficulties can have.

Hertfordshire definition for Developmental Dyscalculia

Mathematics difficulties are best thought of as a continuum, not a distinct category, with Developmental Dyscalculia at the extreme end. It should be expected that Developmental Dyscalculia will be distinguishable from general mathematical difficulties due to the severity of difficulties with:

- number sense: the ability to understand and use number and the number system;
- subitising: instant recognition of the number of items in a small group without counting;
- symbolic and non-symbolic magnitude: ability to discriminate quantity in symbols (i.e. maths words and digits) or pictorially.

Dyscalculic learners may have difficulty understanding simple number concepts; lack an intuitive grasp of numbers; and have on-going problems learning number facts and procedures, performing fluent calculations, and interpreting numerical information. Even if they produce a correct answer or use a correct method, they may do so mechanically and without confidence.

Developmental Dyscalculia is:

- a **persistent** difficulty in understanding and acquiring skills related to arithmetic and basic number sense **despite targeted intervention**;
- an unexpected difficulty in maths that cannot be explained by external factors (see above);
- diverse in character and occurs across all ages and abilities;
- a specific learning difficulty for mathematics, especially arithmetic;
- often co-occurring with other learning difficulties and neuro-developmental difficulties.

An assessment of Developmental Dyscalculia is a process not an event and should happen over time, taking into account a child/young person's patterns of strength and needs.

Acquired Dyscalculia also can arise as a result of traumatic brain injury.

Recent research has concluded that maths interventions should be individualised, based on assessments of a child's specific strengths and weaknesses within mathematics so that each individual child's weaknesses can be targeted effectively. This advice is in line with approaches to address maths difficulties by schools and ISL professionals in Hertfordshire.

References:

- Babtie, P. and Emerson, J. (2015). *Understanding Dyscalculia and Numeracy Difficulties: A Guide for Parents, Teachers and Other Professionals*. London: Jessica Kingsley Publishers.
- British Dyslexia Association (2018). *BDA Dyscalculia & Maths Learning Difficulties Committee: Statement in response to research on dyscalculia at Queen's University, Belfast* <https://www.bdadyslexia.org.uk/news/item/name/bda-dyscalculia-maths-learning-difficulties-committee-statement-in-response-to-research-on-dyscalculia-at-queen-s-university-bel> [Accessed 06/06/19].
- British Dyslexia Association (2018). *Dyslexia Friendly Schools Good Practice Guide: 2nd Edition*. Bracknell: BDA.
- Butterworth, B. (2019). *Dyscalculia: From Science to Education*. Abingdon: Routledge.
- Chinn, S. (2012). *More trouble with maths: A complete guide to identifying and diagnosing mathematical difficulties*. Abingdon: Routledge.
- DfES (2001). *The National Numeracy Strategy. Guidance to Support Learners with Dyslexia and Dyscalculia*. London. DfES
- Dowker, A. (2012). *What works for children with mathematical difficulties*. London: Crown Copyright.
- Emerson, J. and Babtie, P. (2013). *The Dyscalculia Assessment: 2nd Edition*. London: Bloomsbury Publishing Plc.