

INFORMATION SHEET – WHAT IS DYSCALCULIA?

What is dyscalculia?

Dyscalculia is a specific and persistent difficulty understanding numbers which can lead to a diverse range of difficulties with mathematics. It will be unexpected in relation to age, level of education and experience and occurs across all ages and abilities.

Difficulties with mathematics is best thought of as a continuum (rather than a distinct category) and has many causes. Dyscalculia falls at one end of the spectrum and is distinguishable from other maths issues because of the severity of difficulties with number sense, including subitising (the ability to judge small quantities without counting), symbolic and non-symbolic magnitude comparison, and ordering. It can occur singly but often co-occurs with other specific learning difficulties, mathematics anxiety and medical conditions.

About dyscalculia

About 6% of people have dyscalculia. Studies into the causes of dyscalculia are about 30 years behind research into dyslexia. However, it is thought that the lack of number sense typically common to people with dyscalculia is connected to the function of the left intraparietal sulcus which deals with numbers, and the front lobe, which deals with reasoning. It can therefore be hereditary but also connected to certain developmental conditions like Foetal Alcohol Syndrome.

An estimated 25% of people have maths learning difficulties which can be caused either by other neurodiverse conditions such as dyslexia or external issues such as a traumatic learning experience related to maths or school absence etc. 60% of individuals with dyslexia will have difficulties with maths.

How to get an assessment for dyscalculia and/or maths learning difficulties

An informal assessment of maths learning difficulties or maths screening can be carried out by someone with experience in maths learning and learning difficulties.

The purpose of an informal assessment of maths difficulties is to determine the source of the difficulties so that a programme of support can be put in place to address the areas where the student is struggling.

The purpose of a screening test is to identify traits of dyscalculic behaviour that need further investigation by a formal diagnostic assessment.

The British Dyslexic Association (BDA) recommend that a formal diagnostic assessment be carried out by an assessor who is qualified to a level 7 in the assessment of dyscalculia and also has AMBDA dyscalculia. A level 7 qualification in the assessment of dyslexia on its own is not considered to be sufficient by the BDA.

The BDA have assessors that satisfy these requirements and can be accessed via the BDA *Dyscalculia Referral Assessment Service* from this link [Assessments](#)

SASC (The SpLD Assessment Standards Committee) guidelines on who can assess for dyscalculia can be found at <https://sasc.org.uk/sasc-downloads/>

How to support learners with dyscalculia

Maths is a hierarchical subject where topics are revisited in increasingly complex concepts such that early difficulties compound problems in understanding later in the syllabus.

In early learning, children should not merely be taught the digit symbol and the name but also be capable of forming an internal visual representation of that number, in other words to 'see' the number as a dice pattern or 'numicon' tile (plastic shapes). This helps establish a good understanding of the relationship between the name of the number, the symbol and its magnitude or size. Children then need to develop flexibility of number to know how numbers can be made up, for example, that 6 can be $4 + 2$, or double 3, or $5 + 1$, $7 - 1$. This is analogous to being able to match letters to sounds when learning to read.

Thereafter all concepts need to be modelled using concrete materials such as Cuisenaire rods, dice patterns, Dienes apparatus and similar.

The main cause of failure in maths is when the symbols have no meaning and children are taught in a procedural way, failing to understand what they are doing and therefore not being able to remember the procedure or having the confidence to look for different ways to solve problems.

We also need to be careful to use maths language correctly and ensure that its meaning is understood.

Helpful Resources and Contacts

- www.nationalnumeracy.org.uk
- www.Dyscalculianetwork.com
- www.stevechinn.co.uk maths explained
- Ronit Bird Video. www.youtube.com/watch?v=Gstqj5sEEoo

How to identify dyscalculia and maths learning difficulties

Characteristics of people with maths learning difficulties which can also be found in learners with dyscalculia include:

- Difficulties understanding some maths concepts such as fractions and percentages;
- Difficulties with sequencing and pattern spotting;
- Difficulties with short term, working and long term memory;
- Difficulties remembering how to do a calculation or follow a procedure;
- Difficulties with mathematical language and word problems;
- Difficulties with automatic retrieval of information such as times tables;
- Using strategies such as finger counting;
- Slow processing and information retrieval;
- Over reliance of rote learning even if they don't understand what they are doing;
- Unable to explain what they are doing;
- Maths anxiety.