

Apprenticeship Workforce Development Programme

Practitioner Improvement Project

Activate Apprenticeship

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DELIVERED BY



FUNDED BY



Department
for Education



Supporting a learner with dyscalculia

SUPPORT MATTERS



Every learner will need a different approach according to their strengths, difficulties and life experience.

It is their strengths that should form the basis of ongoing learning.

Remember that



Dyscalculia is

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<https://www.bdadyslexia.org.uk/dyslexia/neurodiversity-and-co-occurring-differences/dyscalculia-and-Maths-difficulties>

“a specific and persistent difficulty in 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.

Mathematics difficulties are best thought of as a continuum, not a distinct category, and they have many causal factors.

Dyscalculia falls at one end of the spectrum and will be distinguishable from other Maths issues due to the severity of difficulties with number sense, including subitising, 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.”

(P Jarrett 2019)

How does dyscalculia affect a learner?

Learners with **dyscalculia** have severe Maths difficulties, for example they may have limited number sense, find it difficult to relate digits to amounts (numerosity) and to memorise and recall Maths facts.



https://www.youtube.com/watch?v=_djdPIZrFno



What about Maths anxiety?

Not everyone who has *Maths anxiety* will be dyscalculic, however many learners with **dyscalculia** will experience **Maths anxiety**.

This can be defined as “feelings of tension, apprehension or fear that interfere with mathematics performance”

Richardson and Shuinn.

Hadfield and McNeil suggest that there are three causes of Maths anxiety: environmental, intellectual and self-doubt (see the next slide).



Types of Maths anxiety

Environmental anxiety includes classroom issues, parental pressure and the perception of mathematics as a rigid set of rules.

Intellectual anxiety includes a mismatch of learning styles and teaching styles.

Self-doubt includes low self-esteem and a reluctance to answer questions.

What we can do:

Fear of failure exacerbates the feeling of anxiety, so it is important to encourage learners to try, to praise all effort and to welcome mistakes.

Ultimately knowing our learners, building confidence and a positive mindset with Maths will help to reduce Maths anxiety.

What can help?

Using **manipulatives**, such as dominoes showing dot formation, numicon, dienes blocks, place value discs etc. as well as a multi-sensory approach is very important to these learners to help them to visualise number quantities.



To help a dyscalculic learner achieve their potential, a teacher should:

- Build and ensure **understanding** of Maths concepts – this is key to those who find Maths difficult.
- Uncover and resolve misconceptions.
- Use manipulatives and/or images.
- Have explicit teaching of the language of Maths – building a library of unknown terms can help.
- Use contexts that are of interest and relevant to the learner.
- Use symbols together with language, manipulatives and context.



To help a dyscalculic learner achieve their potential, a teacher should:

- Give the learner time to respond – slow and deep thinking is good.
- Teach estimation techniques – a key skill demanded by the workplace and an essential life skill.
- Observe and discuss methods and techniques and check understanding.
- Explicitly teach calculator skills and support the learner to be confident with this.



To help a dyscalculic learner achieve their potential, a teacher should:

- Encourage and develop problem solving and reasoning skills.
- Provide tips and techniques to help with mental arithmetic.
- Build learner's employability skills so they can use Maths for life.



Calendar		18 May - 22 May				
	18 May	19 May	20 May	21 May	22 May	
09 ⁰⁰	Study	History & Culture in 20th c. 1890-1945		Office hour meeting		
10 ⁰⁰	Study	Study				
11 ⁰⁰		Cultural Encounters - Lecture	Study	Rise of the Modern International	Study	
12 ⁰⁰		Study				
13 ⁰⁰	Study			Advanced Spanish - Seminar		
14 ⁰⁰	Advanced spanish seminar	Rise of the Modern International	Study	Study	Study	
15 ⁰⁰						
16 ⁰⁰						
17 ⁰⁰			Work			
18 ⁰⁰						
19 ⁰⁰	Study	Study				
20 ⁰⁰	Study				Study	
21 ⁰⁰	Study			Study		
22 ⁰⁰						

A learner with dyscalculia will need:

- A regular teaching and study schedule (a clear physical timetable).
- To pre-set phone reminders and alarms to help them keep track of time.
- Multi-sensory teaching methods.
- Modelling of tasks by the teacher.

There is a separate PowerPoint within the GLS SharePoint site with tips about being organised.

A learner with dyscalculia will need:

- Learning tasks broken down into manageable chunks.
- Time to respond to questions – slow and deep thinking is good.
- To check answers as knowing whether an answer makes sense and finding their own mistakes builds independence in learning as well as confidence.
- Extra time in tests and examinations. This will then reflect their normal way of working.



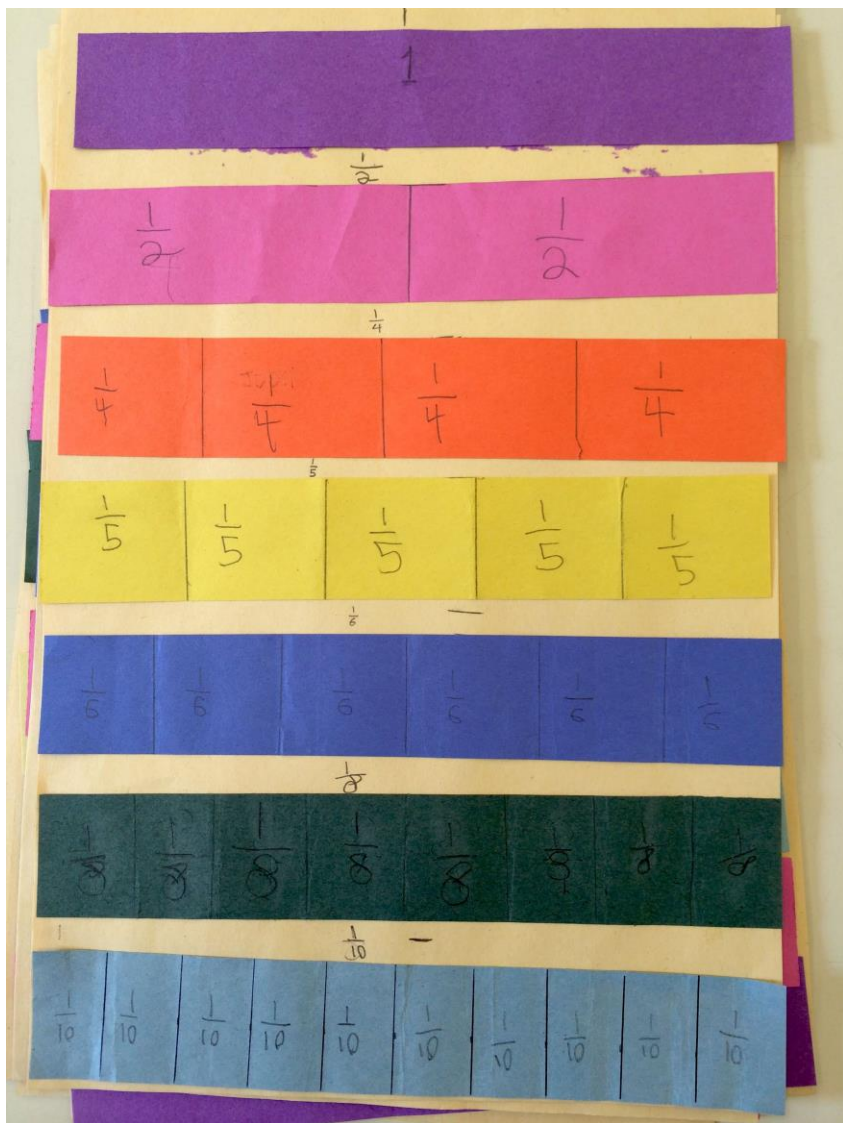


A learner with dyscalculia will need:

- Reassurance that using kinesthetic methods, such as counting objects, is fine.
- Support to count forwards and backwards (use a number line with colored arrows to help with directions).
- Support with left/right confusions.
- To practice left/right, up and down directions when working on graphs or maps.
- To use games to provide an opportunity to reinforce learned procedures or facts in an active way.
- To discuss and investigate different approaches to solving problems with his or her teacher.
- To check answers, as knowing whether an answer makes sense and finding their own mistakes, builds independence in learning as well as confidence.

A learner with dyscalculia will need:

- A digital clock to support difficulties with dates and telling the time.
- Squared paper (the larger the better) to help with hand/eye coordination when drawing lines, using graphs, margins and angles.
- Practical alternatives, for example, fold paper squares and colour when working with fractions.
- Mnemonics and quick reminders to help retain formulas.





In the classroom, a learner with dyscalculia will need:

- The use of handouts.
- A calculator with a large bold display (once the student is confident to use it).
- Key words written in a notebook or on cards.
- To have keywords and numbers highlighted on word problems.

This is not an exhaustive list and other support strategies may be appropriate. For further information and advice, contact Learning (Study) Support for advice and attend training if necessary.

To help with transition and support

The transition study coach in the Group Learning Support team can help.

Information is noted from the Education, Health and Care Plan (EHCP), if a student has one, or from a report from CAMHS.

Staff from the Group Learning Support team can meet with the student and their parents/carers.

Students may be able to come on a visit to College before they enroll.

Students have a single support plan on ProMonitor. This gives information, advice and support suggestions. The plan is reviewed.

For students in the community, who may not be able to attend college full-time, we offer community courses including Maths and English, delivered by the LifeSkills faculty.





Family contact

Many families appreciate regular contact.

They can often help with discussing changes in advance (such as transition from school to college), emotional issues etc.

Discussing beforehand can put any “issues” that may have arisen into context, which may aid explanation later.

If a learner has an EHCP, the teacher will:

- Use the learning outcomes of the EHCP to set short term targets, which will help the learner's progress
- Support the learner, and work with support staff, to help them meet their learning needs and to achieve their learning outcomes as set out in the EHCP
- Contribute to an annual review where the learner's progress and the effectiveness of support in meeting their learning outcomes is discussed, and new learning outcomes are set

For further information:

<https://www.bdadyslexia.org.uk/dyslexia/neurodiversity-and-co-occurring-differences/dyscalculia-and-Maths-difficulties>

<http://www.stevechinn.co.uk/dyscalculia/dyscalculia-in-further-education>

<https://www.nationalnumeracy.org.uk/dyscalculia-poor-relation>

<https://www.eteach.com/blog/3-minutes-on-dyscalculia>

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