



# DYSLEXIA, DYSCALCULIA AND OTHER NEURODIVERSE CONDITIONS

Compiled by Amanda Hornby



## Contents

	Page
<b>Dyslexia</b>	
About dyslexia	3
Definition of dyslexia	4
Signs of dyslexia	4
Signs of dyslexia (Early Years)	5
Signs of dyslexia (Primary school age)	6
Signs of dyslexia (Secondary school age)	9
Signs of dyslexia (adult)	12
Foundation stage checklist	14
Primary school dyslexia checklist	15
Secondary school dyslexia checklist	17
Adult checklist	18
Diagnosis	20
Diagnostic assessment	21
<b>Dyscalculia</b>	22
Characteristics of dyscalculia	23
How does it affect maths learning?	24
How does it affect adults?	24
Characteristics of maths learning difficulties	25
<b>Other neurodiverse conditions</b>	26
Attention deficit hyperactivity disorder	26
Developmental language disorder	27
Autism spectrum disorder	28
Developmental coordination disorder	29
Visual difficulties	30
Dysgraphia	32
Tourette's syndrome	33
<b>Workplace legislation</b>	37
The equality act 2010	37
Employee discrimination	37
Public sector equality duty	38
Reasonable adjustments in the workplace	38
Examples: written communication	39
Memory	41
Driving	41
Things to consider	42

## Dyslexia

Ten percent of the population are believed to be dyslexic, but it is still often poorly understood. With the right support, the strengths and talents of dyslexic people can really shine.

### About dyslexia

Dyslexia is a neurological difference and can have a significant impact during education, in the workplace and in everyday life. As each person is unique, so is everyone's experience of dyslexia. It can range from mild to severe, and it can co-occur with other learning difficulties. It usually runs in families and is a life-long condition.

It is important to remember that there are positives to thinking differently. Many dyslexic people show strengths in areas such as reasoning and in visual and creative fields.

**Watch our video on YouTube – See dyslexia differently -**

**<https://youtu.be/11r7CFIK2sc>**

Dyslexia is a learning difficulty which primarily affects reading and writing skills. However, it does not only affect these skills. Dyslexia is actually about information processing. Dyslexic people may have difficulty processing and remembering information they see and hear, which can affect learning and the acquisition of literacy skills. Dyslexia can also impact on other areas such as organisational skills.

It is important to remember that there are positives to thinking differently. Many dyslexic people show strengths in areas such as reasoning and in visual and creative fields.

## **Definition of dyslexia**

The BDA has adopted the Rose (2009) definition of dyslexia:

Dyslexia is a learning difficulty that primarily affects the skills involved in accurate and fluent word reading and spelling. Characteristic features of dyslexia are difficulties in phonological awareness, verbal memory and verbal processing speed. Dyslexia occurs across the range of intellectual abilities. It is best thought of as a continuum, not a distinct category, and there are no clear cut-off points. Co-occurring difficulties may be seen in aspects of language, motor co-ordination, mental calculation, concentration and personal organisation, but these are not, by themselves, markers of dyslexia. A good indication of the severity and persistence of dyslexic difficulties can be gained by examining how the individual responds or has responded to well-founded intervention.

In addition to these characteristics:

The British Dyslexia Association (BDA) acknowledges the visual and auditory processing difficulties that some individuals with dyslexia can experience and points out that dyslexic readers can show a combination of abilities and difficulties that affect the learning process. Some also have strengths in other areas, such as design, problem-solving, creative skills, interactive skills and oral skills.

BDA (2010)

## **Signs of dyslexia**

There is a misconception that dyslexia just affects the ability to read and write. If this were true, it would be much easier to identify. In fact, dyslexia can have an effect on areas such as coordination, organisation and memory.

Each person with dyslexia will experience the condition in a way that is unique to them and as such, each will have their own set of abilities and difficulties.

However, if you know what to look for, there common signs that can help you to identify whether the difficulties being experienced could be indicative of dyslexia and would suggest that further investigation could be beneficial.

### **Signs of dyslexia (Early Years)**

The following indicators may suggest that your child has a Specific Learning Difficulty (SpLD) such as dyslexia. Many young children will display these behaviours and make these mistakes. It is the severity of the behaviour and the length of time it persists which give vital clues to identifying a difficulty such as dyslexia.

#### **Indicators**

- Difficulty learning nursery rhymes
- Difficulty paying attention, sitting still, listening to stories
- Likes listening to stories but shows no interest in letters or words
- Difficulty learning to sing or recite the alphabet
- A history of slow speech development
- Muddles words e.g. cucumber, flutterby
- Difficulty keeping simple rhythm
- Finds it hard to carry out two or more instructions at one time, (e.g. put the toys in the box, then put it on the shelf) but is fine if tasks are presented in smaller units
- Forgets names of friends, teacher, colours etc.
- Poor auditory discrimination
- Confusion between directional words e.g. up/down
- Family history of dyslexia/reading difficulties
- Difficulty with sequencing e.g. coloured beads, classroom routines
- Substitutes words e.g. "lampshade" for "lamppost"
- Appears not to be listening or paying attention
- Obvious 'good' and 'bad' days for no apparent reason

## **Next steps**

There is a large body of research linking speech and language difficulties in early childhood to later literacy problems. Identifying potential speech and language problems as early as possible is really important as much can be done before a child starts school to develop their language skills. This will then support their reading development at school.

If you are worried about your child's speech and language development, speak to your GP or health visitor. If you think your child may be dyslexic, discuss your concerns with the Special Educational Needs Coordinator (SENCo) in your child's early years setting. Early help is vital to reduce the chance of loss of confidence and low self-esteem. A child can only be diagnosed with dyslexia through a Diagnostic Assessment but these are usually only carried out from 7 years old.

## **More information**

Dyslexia: Early Identification (BDA, 2012) is available from the BDA shop.

Early Help Better Future: A Guide to the Early Recognition of Dyslexia by Jean Augur

Understanding and supporting neurodiversity: Support strategies for families and carers, BDA 2017

## **Signs of dyslexia (Primary school age)**

If a child appears to be struggling with spelling, reading, writing or numeracy, how do you know whether these difficulties are potential indications of dyslexia?

There are some obvious signs such as a 'spiky' profile which means that a child has areas of strong ability alongside areas of weakness. You may also have other family members with similar weaknesses. Remember that not all dyslexic children will display the same weaknesses and abilities.

## General signs to look for are:

- Speed of processing: slow spoken and/or written language
- Poor concentration
- Difficulty following instructions
- Forgetting words

## Written work

- Poor standard of written work compared with oral ability
- Produces messy work with many crossings out and words tried several times, e.g. wippe, wype, wiep, wipe
- Confused by letters which look similar, particularly b/d, p/g, p/q, n/u, m/w
- Poor handwriting with many 'reversals' and badly formed letters
- Spells a word several different ways in one piece of writing
- Makes anagrams of words, e.g. tired for tried, bread for beard
- Produces badly set-out written work, doesn't stay close to the margin
- Poor pencil grip
- Produces phonetic and bizarre spelling: not age/ability appropriate
- Uses unusual sequencing of letters or words

## Reading

- Slow reading progress
- Finds it difficult to blend letters together
- Has difficulty in establishing syllable division or knowing the beginnings and endings of words
- Unusual pronunciation of words
- No expression in reading, and poor comprehension
- Hesitant and laboured reading, especially when reading aloud
- Misses out words when reading, or adds extra words
- Fails to recognise familiar words
- Loses the point of a story being read or written
- Has difficulty in picking out the most important points from a passage



## **Numeracy**

- Confusion with place value e.g. units, tens, hundreds
- Confused by symbols such as + and x signs
- Difficulty remembering anything in a sequential order, e.g. tables, days of the week, the alphabet
- Time
- Has difficulty learning to tell the time
- Poor time keeping
- Poor personal organisation
- Difficulty remembering what day of the week it is, their birth date, seasons of the year, months of the year
- Difficulty with concepts – yesterday, today, tomorrow

## **Skills**

- Poor motor skills, leading to weaknesses in speed, control and accuracy of the pencil
- Memory difficulties e.g. for daily routines, self-organisation, rote learning
- Confused by the difference between left and right, up and down, east and west
- Indeterminate hand preference
- Performs unevenly from day to day

## **Behaviour**

- Uses work avoidance tactics, such as sharpening pencils and looking for books
- Seems 'dreamy', does not seem to listen
- Easily distracted
- Is the class clown or is disruptive or withdrawn
- Is excessively tired due to amount of concentration and effort required

A cluster of these indicators alongside areas of ability may suggest dyslexia and further investigation may be required.

## **Next steps**

If you suspect that your child may be dyslexic then you should discuss your concerns with your child's teacher, or the school's Special Educational Needs Coordinator (SENCo).

A teacher should consult the school's SENCo to discuss the next steps and appropriate support. The SEND Code of Practice states that if a teacher suspects that a learner has special educational needs (SEN) then they must inform the child's parents and include them in discussions about what is the best support for their child. They must also tell parents about any special educational provision that is made for their child.

It is advised that appropriate support is put in place as soon as a need is identified. A Diagnostic Assessment is not needed in order for SEN Support to be provided. However, dyslexia can only be formally identified through a Diagnostic Assessment.

To find out more about assessments visit the BDA Diagnostic Assessment webpage.

## **More information**

[Understanding and supporting neurodiversity: Support strategies for parents and carers, BDA 2018](#)

### **Signs of dyslexia (Secondary school age)**

Dyslexia is a combination of abilities as well as difficulties. It is the disparity between them that is often the give-away clue. A dyslexic learner, despite certain areas of difficulty, may be orally very able and knowledgeable, creative, artistic, or sporting. Alongside these abilities will be a cluster of difficulties - these will be different for every person.

Dyslexia can only be diagnosed through a Diagnostic Assessment. However, there are indicators which can help you to identify a young person who may be dyslexic.

## Written work

- Has a poor standard of written work compared with oral ability
- Has poor handwriting with badly formed letters or has neat handwriting, but writes very slowly
- Produces badly set out or messy written work, with spellings crossed out several times
- Spells the same word differently in one piece of work
- Has difficulty with punctuation and/or grammar
- Confuses upper and lower case letters
- Writes a great deal but 'loses the thread'
- Writes very little, but to the point
- Has difficulty taking notes in lessons
- Has difficulty with organisation of homework
- Finds tasks difficult to complete on time
- Appears to know more than they can commit to paper

## Reading

- Is hesitant and laboured, especially when reading aloud
- Omits, repeats or adds extra words
- Reads at a reasonable rate, but has a low level of comprehension
- Fails to recognise familiar words
- Misses a line or repeats the same line twice
- Loses their place easily/uses a finger or marker to keep the place
- Has difficulty in pin-pointing the main idea in a passage
- Has difficulty using dictionaries, directories, encyclopaedias

## Numeracy

- Has difficulty remembering tables and/or basic number sets
- Finds sequencing problematic
- Confuses signs such as x for +
- Can think at a high level in mathematics, but needs a calculator for simple calculations

- Misreads questions that include words
- Finds mental arithmetic at speed very difficult
- Finds memorising formulae difficult

### **Other areas**

- Confuses direction - left/right
- Has difficulty in learning foreign languages
- Has difficulty in finding the name for an object
- Has clear difficulties processing information at speed
- Misunderstands complicated questions
- Finds holding a list of instructions in memory difficult, although can perform all tasks when told individually

### **Behaviour**

- Is disorganised or forgetful e.g. over sports equipment, lessons, homework, appointments
- Is easily distracted. May find it difficult to remain focused on the task
- Is often in the wrong place at the wrong time
- Is excessively tired, due to the amount of concentration and effort required

A cluster of these indicators alongside areas of ability may point to possible dyslexia and further investigation is recommended.

### **Next steps**

If you suspect that your child may be dyslexic then you should discuss this with your child's teacher or the school's Special Educational Needs Coordinator (SENCo).

If a teacher is concerned that a learner may have dyslexia or have any other SpLD, then they should consult the school's SENCo to discuss a plan of action. It is important that appropriate support is put in place as soon as a need is identified, rather than waiting for a formal identification.

Under the SEND Code of Practice, if a teacher suspects that a child has special educational needs (SEN) then they must inform a child's parents and include them in discussions about what is the best support for their child. The school must also tell the parents of any special educational provision that is made for their child.

Dyslexia can only be formally identified through a Diagnostic Assessment but this is not needed in order for the young person to receive support. You can find out more about Diagnostic Assessments on the BDA Assessment webpage.

### **More information**

[Understanding and support neurodiversity: Support strategies for parents and carers, BDA 2018](#)

### **Signs of dyslexia (adult)**

Everyone's experience of dyslexia will be individual to them but there are common indicators. A cluster of these indicators alongside abilities in other areas could suggest dyslexia and should be investigated further.

#### **Do you:**

- Confuse visually similar words such as cat and cot
- Spell erratically
- Find it hard to scan or skim text
- Read/write slowly
- Need to re-read paragraphs to understand them
- Find it hard to listen and maintain focus
- Find it hard to concentrate if there are distractions
- Feel sensations of mental overload/switching off
- Have difficulty telling left from right
- Get confused when given several instructions at once
- Have difficulty organising thoughts on paper

- Often forget conversations or important dates
- Have difficulty with personal organisation, time management and prioritising tasks
- Avoid certain types of work or study
- Find some tasks really easy but unexpectedly challenged by others
- Have poor self-esteem, especially if dyslexic difficulties have not been identified in earlier life

If you feel this reflects you, you can get an indication if you may be dyslexic from our adult dyslexia checklist and/or a dyslexia screener. These are not diagnostic tool but can also be used to indicate whether further investigations should take place.

If a checklist and/or screener indicates you are likely to be dyslexic, a formal Diagnostic Assessment is the only way to confirm whether or not the difficulties you encounter are due to dyslexia. A formal diagnosis will, in turn, help you to get the right support within the education system, and in the workplace. Find out more on the BDA Assessments webpage.

## Foundation Stage Dyslexia Checklist

(EXAMPLE developed as part of BDA's Dfe Neurodiversity project 2017)

<b>Name</b>		<b>Class</b>	
<b>DOB</b>	<b>Age</b>	<b>Date</b>	

Difficulties	Yes	No
Family history of similar difficulties		
May have walked early but did not crawl		
History of intermittent hearing problems		
Difficulty in getting dressed, buttons, shoe laces		
Can be clumsy and show a lack of coordination		
Slow to develop speech		
Speech may be indistinct		
Problems finding the right word to describe things		
Difficulty in pronouncing long words (multi - syllabic)		
Lack of awareness of rhyme		
Lack of awareness of sounds in words		
Difficulty with naming letters		
Little interest in print/ avoidance of reading		
Inability to read cvc words		
Enjoys being read to, but can lose the thread of a story		
Difficulty in following instructions		
Poor concentration		
Seems to tire quickly		
Other (describe)		
Strengths	Yes	No
Good receptive vocabulary		
Imaginative		
Enjoys practical activities – construction toys, etc.		
Enjoys conversation		
Empathetic to the needs/feelings of others		
Enjoys solving problems		
Interested in finding things out		
Good comprehension of texts when read to		
Prefers drawing pictures than writing		
Other (describe)		

**Primary School Dyslexia Checklist**  
(EXAMPLE BDA Quality Mark for Schools)

<b>Name</b>		<b>Class</b>	
<b>DOB</b>		<b>Age</b>	<b>Date</b>

<b>Difficulties</b>	<b>Yes</b>	<b>No</b>
Family history of similar difficulties		
Difficulty with phonological awareness especially at the phoneme level		
Difficulty with following instructions		
Need for time to produce an oral response when questioned		
Lack of fluency in reading affecting comprehension		
Inaccurate decoding		
Fear of reading aloud		
A lack of enjoyment of reading		
Persistent and marked difficulty with spelling		
Messy, laboured handwriting		
Difficulty in finding the right word to describe things		
Mispronounces words		
Difficulty in remembering sequential information, e.g. alphabet, times tables, days of week		
Poor short-term working memory		
Takes longer than average to complete written tasks		
Difficulty copying from the board		
May describe visual discomfort when text reading		
Can be clumsy and lack co-ordination		
Mixing up numerical symbols		
Difficulty with Maths vocabulary		
Miswriting of numbers		
Low self-esteem		
Behavioral difficulties		
Other (describe)		
<b>Strengths</b>	<b>Yes</b>	<b>No</b>
Imaginative		
Good at thinking and reasoning skills		
Able to see the "big picture"		
Good at problem solving		
Good general knowledge		
Good understanding of texts that have been read to him/her		



Curious		
Sophisticated receptive language		
Good visual-spatial skills		
Other (describe)		

**Secondary School Dyslexia Checklist**  
**(EXAMPLE BDA Quality Mark for Schools)**

<b>Name</b>		<b>Class</b>	
<b>DOB</b>		<b>Age</b>	
		<b>Date</b>	

<b>Difficulties</b>	<b>Yes</b>	<b>No</b>
Family history of similar difficulties		
Problems recalling facts		
Difficulty with recalling/following instructions		
Difficulty remembering sequential information, e.g. times tables, science procedures, historical facts		
Poor concept of time		
Problems with note taking		
Organizational difficulties, remembering homework, equipment, etc		
Word finding difficulties		
Difficulty with fluent, accurate reading affecting comprehension		
Difficulty with/avoids reading aloud in class		
Difficulty with phonological awareness especially at phonemic level		
Persistent difficulty with spelling		
Poor structure and organization of written work		
Difficulty copying from the board		
Difficulties producing clear, legible handwriting		
Low self-esteem		
Aggressive or non-compliant behaviour		
Work avoidance tactics		
Lack of confidence		
Other (describe)		

<b>Strengths</b>	<b>Yes</b>	<b>No</b>
Sophisticated receptive vocabulary		
Good critical thinking and reasoning skills		
Capacity to perceive information 3-dimensionally		
Creative, imaginative, practical skills		
Good interpersonal skills		
Intuitive		
Visual spatial skills		
Good visual memory		
Capacity to see the "big picture"		
Good general knowledge		
Sport and/or drama skills		
Other (describe)		

## Adult Checklist

For each question, circle the number in the box which is closest to your response.

		Rarely	Occasionally	Often	Most of the time	Total
1	Do you confuse visually similar words such as cat and cot?	3	6	9	12	
2	Do you lose your place or miss out lines when reading?	2	4	6	8	
3	Do you confuse the names of objects, for example table for chair?	1	2	4	4	
4	Do you have trouble telling left from right?	1	2	4	4	
5	Is map reading or finding your way to a strange place confusing?	1	2	4	4	
6	Do you re-read paragraphs to understand them?	1	2	4	4	
7	Do you get confused when given several instructions at once?	1	2	4	4	
8	Do you make mistakes when taking down telephone messages?	1	2	4	4	
9	Do you find it difficult to find the right word to say?	1	2	4	4	
10	How often do you think of creative solutions to problems?	1	2	4	4	
		<b>Easy</b>	<b>Challenging</b>	<b>Difficult</b>	<b>Very Difficult</b>	<b>Total</b>
11	How easy do you find it to sound out words such as e-le-phant?	3	6	9	12	
12	When writing, do you find it difficult to organise thoughts on paper?	2	4	6	8	
13	Did you learn your multiplication tables easily?	2	4	6	8	
14	How easy do you find it to recite the alphabet?	1	2	3	4	
15	How hard do you find it to read aloud?	1	2	3	4	

---

© BDA 2012. Registered Charity No. 289243. Company Ltd No. 1830587. Copies may be made provided the source and date is quoted and the content is unchanged. 1

## Results from the Adults Test - what it all means.

A checklist for dyslexic adults will not provide enough information for a diagnostic assessment, but it can be very useful in promoting a better self-understanding and a pointer towards future assessment needs.

Below are the questions that were found to be more predictive of dyslexia (as measured by prior diagnosis). In order to provide the most informative checklist, scores for each answer indicate the relative importance of that question. Alongside each line you can keep a tally of your score and at the end find a total.

The research and development of the checklist has provided a valuable insight into the diversity of difficulties and is a clear reminder that every individual is different and should be treated and assessed as such. However, it is also interesting to note that a number of questions, the answers to which are said to be characteristics of dyslexic adults, are commonly found in the answers of non-dyslexics.

It is important to remember that this test does not constitute an assessment of one's difficulties. It is just an indication of some of the areas in which you or the person you are assessing may have difficulties. However this questionnaire may provide a better awareness of the nature of an individual's difficulties and may indicate that further professional assessment would be helpful.

Whilst we do stress that this is not a diagnostic tool, research suggests the following:

**Score less than 45** - probably non-dyslexic.

Research results: no individual who was diagnosed as dyslexic through a full assessment was found to have scored less than 45 and therefore it is unlikely that if you score under 45 you will be dyslexic.

**Score 45 to 60** - showing signs consistent with mild dyslexia.

Research results: most of those who were in this category showed signs of being at least moderately dyslexic. However, a number of persons not previously diagnosed as dyslexic (though they could just be unrecognised and undiagnosed) fell into this category.

**Score Greater than 60** - signs consistent with moderate or severe dyslexia.

Research results: all those who recorded scores of more than 60 were diagnosed as moderately or severely dyslexic. Therefore we would suggest that a score greater than 60 suggests moderate or severe dyslexia. Please note that this should not be regarded as an assessment of one's difficulties. But if you feel that a dyslexia-type problem may exist, further advice should be sought.

© Copyright Ian Smythe and John Everatt, 2001

---

© BDA 2012. Registered Charity No. 289243. Company Ltd No. 1830587.  
Copies may be made provided the source and date is quoted and the content is unchanged.

## **Diagnosis**

If you suspect that your child may be dyslexic and would benefit from additional support then your first step should be to consult your child's teacher or the school's Special Educational Needs Coordinator (SENCo) to discuss your concerns.

The SENCo may decide to carry out screening tests or checklists to find out more about your child's areas of strength and weakness in order to see how best they can be supported in the classroom. This support is called SEN Support.

A school doesn't need a formal diagnosis to put support in place for your child and shouldn't delay in providing appropriate support and/or interventions. However, a Diagnostic Assessment can help to ensure that the appropriate interventions are put in place.

## **Diagnostic Assessment**

The only way dyslexia can be formally diagnosed is through a Diagnostic Assessment carried out by a certified dyslexia assessor. This assessment will tell you if your child is dyslexic or not. You will receive a detailed report outlining areas of strengths and weaknesses and a clearer idea of your child's cognitive profile and how best to support them.

### **The aim of the assessment aim is:**

- To highlight the young person's individual style of learning or working and what does/doesn't work for them
- To collect information about reading, spelling and writing skills
- To identify whether there is a clear discrepancy between general level of ability, and reading and writing attainment
- To consider other factors which may be affecting learning
- To identify whether any Reasonable Adjustments will need to be made in order for a young person to fully access the curriculum and exams
- Through consultation with the school's SENCo these assessments can either be requested by the school, or you can arrange and pay for an assessment privately.

The British Dyslexia Association can offer advice, and arrange Diagnostic Assessments. Find out more on the BDA Assessment webpage.

## Dyscalculia

### **What is Dyscalculia?**

Dyscalculia is 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.

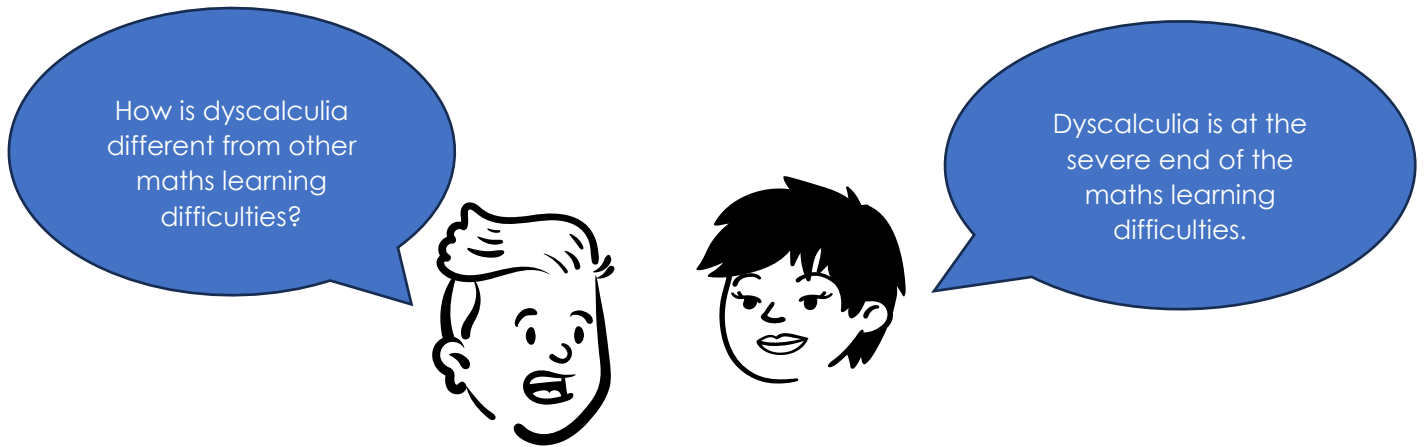
Mathematics difficulties are best thought of as a continuum, not a distinct category, and they have many causal factors. Dyscalculia falls at one end of the spectrum and will be distinguishable from other maths issues due to the severity of difficulties with number sense, including subitising, symbolic 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.

(BDA Definition)

### **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 that is often 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.**



### Characteristics that are found in people with dyscalculia:

- Difficulties with maths are persistent and will have been present since the learner was young.
- Difficulties apply to arithmetic but not necessarily to other areas of maths such as geometry and algebra.
- Difficulties in maths but not subjects like English and subjects which do not involve numbers.
- Lack of an intuitive understanding of numbers and simple number concepts, for example the relationship between multiplication and repetitive addition.
- Lack of a fundamental understanding of how numbers relate to each other, for example 6 can be made from  $5 + 1$ , double 3,  $4 + 2$  (flexibility of number) as well as a visual concept of the magnitude of numbers. They cannot make sensible references to numbers. For example, if asked if a pair of trainers (not a designer make) should cost £4,000.
- Young children have difficulties with subitising, knowing how many items there are in a set. They need to count them one by one.
- Learners rely on following procedures which they may not understand, rote learning and simple ways of working out answers like counting on their fingers.



- Extreme difficulties spotting patterns in numbers and making generalisations.
- High levels of maths anxiety.

### **How does dyslexia affect maths learning?**

People with dyslexia tend to have poor working memory, speed of processing and rapid retrieval of information from long-term memory. These weaknesses will also affect maths learning.

60% of learners with dyslexia have maths learning difficulties. They may develop gaps in their learning because of the hierarchical nature of maths, the lack of firm foundation skills can affect the learning of new skills.

They may have specific difficulties with certain areas of maths such as fractions and decimals, long division and multiplication, multiplication tables, money and time but not with number skills.

Misunderstand some of the mathematical terms and language.

Difficulties with sequencing and following procedures.

They forget previously mastered procedures very quickly.

### **How does dyscalculia and maths learning difficulties affect adults?**

We need maths to carry out every day tasks. It affects ability to tell the time and plan schedules, to estimate the cost of living and make appropriate purchases to stay within a budget, to calculate distances for travel and work out journey times.

Almost all jobs need maths from hairdressers, builders, chefs and cooks, market stall holders, upholsterers and those involved with sail making, boat builders, architects, engineers, accountants, business people generally and so many more professions.

About 1 in 4 adults have a fear of maths. You are not alone. Take the National Numeracy Challenge.

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

- 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.
- Immature strategies such as finger counting.
- Slow processing and information retrieval.
- Over-reliance on rote learning even if they don't understand what they are doing.
- Unable to explain what they are doing.
- Maths anxiety.

Learners with dyscalculia can have some or all of the above but also have difficulties with number sense including comparing the values of numbers.

Early identification is vital and the correct intervention at a young age to develop number awareness and flexibility will help build strong foundations for the understanding of the number system.

## Other Neurodiverse Conditions

### **Attention Deficit Hyperactivity Disorder**

ADHD is a neurodevelopmental disorder which has features relating to both specific learning difficulties and mental health. There are three main presentations of ADHD: predominantly inattentive, predominantly hyperactive and impulsive or combined presentation which includes symptoms of both. These symptoms are present in multiple settings, such as at school, at home or at work, and affect or reduce the quality of social, academic or occupational functioning.

#### **Common ADHD symptoms include:**

- Inattention
- lack of focus
- Poor time management
- Weak impulse control
- Emotional dysregulation
- Hyperfocus
- Hyperactivity
- Executive dysfunction
- Poor working memory

Similar to dyslexia, individuals with ADHD can show considerable strengths alongside their weaknesses and difficulties. These strengths may be associated with characteristics of ADHD such as the ability to hyperfocus, as well as increased creativity, imagination and problem-solving. When supporting people with ADHD it's important to understand and build upon their individual strengths, as well as support them in managing difficulties that stem from inattention, hyperactivity or impulsive behaviour. It's also important to recognise the mental health impacts of ADHD when creating a system of support, as ADHD is known to co-occur with mental health conditions such as anxiety and depression.

Some examples of celebrities with ADHD are Emma Watson, Michael Phelps, Simone Biles, Justin Timberlake, Jamie Oliver and Solange Knowles.

### **Developmental Language Disorder (DLD)**

Developmental Language Disorder (DLD) was previously known as Specific Language Impairment (SLI) it is a type of speech, language and communication need (SLCN).

Children with DLD are usually as able and healthy as other children in all ways, with one exception; they have enormous difficulty talking and understanding language.

There is no obvious reason for these difficulties and they are not associated with other conditions, such as cerebral palsy, hearing impairment or autistic spectrum disorders. Children with DLD are often as clever as any other child of their age but they still have difficulties with speech and language.

A child can be diagnosed with DLD if their language difficulties:

- are likely to carry on into adulthood
- have a significant impact on progress at school, or on everyday life
- are unlikely to catch up without help

Children are not usually diagnosed until after the age of 5 and until some therapy has been carried out to see if the difficulties resolve.

More information

I CAN

The children's communication charity. Experts in helping children develop the speech, language and communication skills they need to thrive in the 21st century world. Website: [www.ican.org.uk](http://www.ican.org.uk)

The Communication Trust

This is a coalition of over 50 organisations. Working together they support everyone who works with children and young people in England to support their speech, language and communication. The site contains lots of free resources for parents and practitioners.

Website: [www.thecommunicationtrust.org.uk](http://www.thecommunicationtrust.org.uk)

## **ASD Autism Spectrum Disorder**

Autism is a lifelong, developmental disability that affects how a person communicates with and relates to other people, and how they experience the world around them. (National Autistic Society)

ASD refers to a broad range of conditions characterised by differences in social skills, repetitive behaviours, speech and nonverbal communication. People with ASD may communicate, interact, behave, and learn in ways that are different from most other people. ASD is a spectrum disorder, which means that some people with ASD need a lot of support in their daily lives, whereas others need less.

People with ASD often have difficulties with social, emotional, and communication skills. They may repeat certain behaviours and dislike changes in their daily activities, they may experience sensory differences and a differences in social situations. Many people with ASD also have different ways of learning, paying attention, or reacting to things. Signs of ASD usually begin during childhood and typically last throughout a person's life.

## **More information**

National Autistic Society (NAS)

The leading UK charity for autistic people (including those with Asperger syndrome) and their families. They provide information, support and pioneering services, and campaign for a better world for autistic people.

Website: [www.autism.org.uk](http://www.autism.org.uk)

Ambitious about Autism

Ambitious about Autism is a national charity for children and young people with autism. They provide services, raise awareness and understanding, and campaign for change. They also offer specialist education and support. Their ambition is to make the ordinary possible for more children and young people with autism.

Website: [www.ambitiousaboutautism.org.uk](http://www.ambitiousaboutautism.org.uk)

### **DCD Developmental Coordination Disorder (Dyspraxia)**

Developmental Coordination Disorder (DCD), also known as dyspraxia, is a common disorder affecting fine and/or gross motor coordination in children and adults. This condition is formally recognised by international organisations including the World Health Organisation.

DCD is distinct from other motor disorders such as cerebral palsy and stroke. The range of intellectual ability is in line with the general population. Individuals may vary in how their difficulties present; these may change over time depending on environmental demands and life experience, and will persist into adulthood.

An individual's coordination difficulties may affect participation and functioning of everyday life skills in education, work and employment. Children may present with difficulties with self-care, writing, typing, riding a bike, play as well as other educational and recreational activities. In adulthood many of these difficulties will continue, as well as learning new skills at home, in education and work, such as driving a car and DIY.

### **More information**

Dyspraxia Foundation

This site includes information on 'How would I recognise a child with dyspraxia?' and primary and secondary classroom guidelines. The Foundation supports parents, individuals and professionals either living with, or supporting those with dyspraxia.

Website: <https://dyspraxiafoundation.org.uk>

## Movement Matters

This is the UK umbrella organisation representing the major national groups concerned with children and adults with dyspraxia. The website holds documents and videos aimed at parents, teachers and employers of people with dyspraxia.

Website: [www.movementmattersuk.org](http://www.movementmattersuk.org)

## Visual Difficulties

Some people experience visual discomfort or disturbance when they read. Common symptoms that may significantly impair reading ability, or make reading very tiring, include:

- headaches and eyestrain associated with reading and/or other near work
- text appearing blurred or going in and out of focus
- text appearing double or alternating between single and double
- difficulty keeping place in text
- difficulty tracking across lines of text
- discomfort with brightness of the page or contrast between text and background
- text that appears to shimmer or flicker

Symptoms such as these have a variety of different causes, some of which may be due to disease or abnormality, so they must be investigated by a professional who is qualified to diagnose them correctly and give appropriate treatment. Anyone who experiences such difficulties associated with reading should consult a registered optometrist for a full assessment of eye health and visual function.

While adults may recognise symptoms, children may not be aware of them, as this is how they always experience reading. For this reason, any child who is a struggling reader should be assessed by an optometrist to either rule out or treat visual difficulties. This assessment and treatment is to check the health of the eyes and to enable clear and comfortable vision; treatment of visual difficulties is not treatment of dyslexia.

All children under the age of 16, and young adults under the age of 19 who are in full-time education, are entitled to a free NHS sight test with an optometrist, and to an optical voucher to help with the cost of glasses or contact lenses. The NHS sight test is sufficiently comprehensive to enable the optometrist to assess eye health and identify the likely causes of visual problems that affect reading and other near work. This should include an assessment of the ability of the eyes to focus and work together correctly (binocular accommodation and convergence).

In many cases the NHS sight test is all that is required to enable an optometrist to identify a problem and provide appropriate treatment with prescription glasses or contact lenses. Sometimes, however, the optometrist will consider that further assessment and/or other forms of treatment are necessary. The most likely of these will involve full assessment of binocular vision which may need treatment with eye muscle exercises (known as orthoptics or vision therapy) and/or pattern-related visual stress which may sometimes be alleviated using precision-coloured overlays or lenses. Such assessments and treatments are outside the scope of the NHS sight test, so the optometrist will either offer these privately for a fee or refer to another practitioner, such as an optometrist working in a specialist university clinic, or an orthoptist working in NHS secondary care (hospital). All NHS hospital orthoptics departments and university specialist optometry clinics will undertake assessment and treatment of binocular vision anomalies, but not all will offer assessment and treatment of visual stress.



The vision screening that most children undergo at school entry (age 4 to 5) is only a test of whether a child can see clearly in the distance. It is not a comprehensive assessment of eyes or vision and does not test any of the functions required for clear and comfortable vision when reading. For this reason, every child should have a full sight test when they start school, and as frequently as recommended by their optometrist after that.

Some websites and providers of education resources offer coloured overlays, tinted reading rulers, and other devices that may make reading easier and more comfortable for some children. These aids may be helpful, but it is very important that these aids should not replace or discourage full professional assessment. In particular, coloured overlays and similar aids must not be promoted as the first strategy to help children with reading difficulties. If children have visual difficulties, then it is essential that these are diagnosed and managed correctly by qualified, registered professionals.

For information on how to make written text dyslexia friendly see the BDA's Dyslexia Style Guide.

## **Dysgraphia**

Dysgraphia is a learning disability that results in impaired handwriting, impaired spelling, or both in someone of normal or above-average intelligence. It is not a mental health disorder, but rather a brain-based learning disability marked by difficulty forming letters, spelling words correctly, staying within lines, writing legibly, or organizing and expressing one's ideas on paper.

Dysgraphia is frustrating for children or adults and can cause great emotional difficulty and distress. Someone with dysgraphia may have trouble spelling written words or writing at a normal speed, but will not necessarily have problems reading or speaking. Dysgraphia can occur in isolation or with other learning disabilities such as dyslexia, which is an impaired ability to read and comprehend written words. It can also co-occur with selective language

impairments that cause additional problems with learning written and oral language skills.

Dysgraphia can manifest as problems with fine motor skills, spatial perception, and/or language processing. Possible signs may include:

- poorly formed individual letters
- lack of or incorrect punctuation and capitalization
- awkward or painful pencil grip and/or unusual positioning of wrist, arm, or body when writing
- frequent hand cramps while writing
- omitting words from sentences
- skipping letters when writing words
- poor sentence organization; sentences may be grammatically incorrect
- incorrect word usage
- difficulty writing and thinking at the same time

Because writing can be frustrating or even physically painful, some individuals with dysgraphia will attempt to avoid writing altogether or feel distressed at the idea of having to write. Children who have dysgraphia but no other learning disorder are sometimes mistakenly labeled as “lazy” or “unmotivated” when it comes to handwriting; these negative self-perceptions may persist until adulthood, especially if dysgraphia is not diagnosed or treated.

ADHD is not a cause of dysgraphia. However, children with ADHD are at a higher than average risk of developing dysgraphia; they may have additional learning disabilities as well. Some evidence suggests that girls with ADHD may be more likely than boys to have both dysgraphia and dyslexia.

### **Tourette's Syndrome**

Tourette's syndrome is a condition that causes a person to make involuntary sounds and movements called tics.

It usually starts during childhood, but the tics and other symptoms usually improve after several years and sometimes go away completely.

There's no cure for Tourette's syndrome, but treatment can help manage symptoms.

People with Tourette's syndrome may also have obsessive compulsive disorder (OCD), attention deficit hyperactivity disorder (ADHD) or learning difficulties.

Tics are the main symptom of Tourette's syndrome. They usually appear in childhood between the ages of 2 and 14 (around 6 years is the average).

People with Tourette's syndrome have a combination of physical and vocal tics.

Examples of physical tics include:

- blinking
- eye rolling
- grimacing
- shoulder shrugging
- jerking of the head or limbs
- jumping
- twirling
- touching objects and other people

Examples of vocal tics include:

- grunting
- throat clearing
- whistling
- coughing
- tongue clicking
- animal sounds

- saying random words and phrases
- repeating a sound, word or phrase
- swearing

Swearing is rare and only affects about 1 in 10 people with Tourette's syndrome.

Tics are not usually harmful to a person's overall health, but physical tics, such as jerking of the head, can be painful.

Tics can be worse on some days than others.

They may be worse during periods of:

- stress
- anxiety
- tiredness

People with Tourette's syndrome can have mood and behavioural problems, such as:

- attention deficit hyperactivity disorder (ADHD)
- obsessive compulsive disorder (OCD)
- depression or anxiety

Children with Tourette's syndrome may also be at risk of bullying because their tics might single them out.

Premonitory sensations

Most people with Tourette's syndrome experience a strong urge before a tic, which has been compared to the feeling you get before needing to itch or sneeze.

These feelings are known as premonitory sensations. Premonitory sensations are only relieved after the tic has been carried out.

Examples of premonitory sensations include:

- a burning feeling in the eyes before blinking
- a dry or sore throat before grunting
- an itchy joint or muscle before jerking

### Controlling tics

Some people can control their tics for a short while in certain social situations, like in a classroom. It requires concentration but gets easier with practice.

Controlling tics can be tiring. A person may have a sudden release of tics after a day of trying to control them, like after returning home from school.

Tics may be less noticeable during activities involving a high level of concentration, such as reading an interesting book or playing sports.

## **Workplace Legislation**

From October 1st 2010, disability discrimination issues became covered by the Equality Act. This replaced the Disability Act 1995. The Equality Act 2010 legally protects people from discrimination in the workplace and in wider society.

An employer has a legal duty under The Equality Act 2010 to make appropriate reasonable adjustments to reduce the impact that a disability has on a person's ability to perform effectively in their role.

### **The Equality Act 2010**

defines a disability as:

"a physical or mental impairment which has a substantial and long-term adverse effect on their ability to carry out normal day-to-day activities".

Substantial is defined as 'more than trivial'.

Therefore, as dyslexia is a lifelong condition and has a significant impact on a person's day-to-day life, it meets the criteria of a disability and is covered by The Equality Act 2010.

An employer must not refuse to employ someone simply because they have a disability. They also have a legal duty to make reasonable adjustments to the workplace. This duty begins with the recruitment process, so recruitment and selection processes must be dyslexia-friendly to be lawful.

### **Employee discrimination**

Employers must not discriminate against a disabled person in:

- The recruitment and retention of employees
- Promotion and transfers
- Training and development
- The dismissal process

In addition, we also have case law in relation to dyslexia and employment.

This shows that employers need to:

- Ensure that managers and colleagues of dyslexic people are aware of the condition and reasonable adjustments that need to be made.
- Ensure that dyslexic people are not directly or indirectly bullied as a consequence of their dyslexia.
- Dyslexia is covered by the Equality Act 2010, so employers have a duty to make reasonable adjustments for dyslexic staff members in the workplace.

If a person with a disability feels they have been discriminated against they may want to take their case to an Employment Tribunal. If they win the case, they may be able to claim for financial loss and damages for injuries to feelings. The Tribunal may instruct the employer to make a reasonable adjustment to enable the dyslexic person to work.

### **Public Sector Equality Duty**

The Public Sector Equality Duty (section 149 of the Act) came into force on 5 April 2011. The Equality Duty applies to public bodies and others carrying out public functions. It supports good decision-making by ensuring public bodies consider how different people will be affected by their activities, helping them to deliver policies and services which are efficient and effective; accessible to all; and which meet different people's needs.

### **Reasonable adjustments in the workplace**

Reasonable adjustments are the steps taken to help an individual gain the most of their strengths and minimise the challenges that they might experience as a result of their dyslexia. These adjustments will vary according to the needs of the employee and the job role. An employee does not need to have had an diagnostic assessment in order to receive reasonable adjustments.

It is advised that specialist advice, such as a Workplace Needs Assessment, is taken to determine the most appropriate adjustments for a particular individual.

When making reasonable adjustments, you should determine:

- The nature of the individual's dyslexia; this could be obtained from a diagnostic assessment.
- The requirements of the job and its related requirements which should be obtained through a Workplace Needs Assessment.
- The working environment and working practices, and any impact on performance.
- The requirements of any associated training and assessment.

This process will help to identify job and training requirements that are likely to be the most successful in mitigating any areas of difficulty. Implementing reasonable adjustments will not be an overnight remedy. Depending on the nature of the dyslexia and the job specification, it may take a few months before it's appropriate to review the impact that the adjustments have made.

It's important to be aware that people with dyslexia will not all have the same areas of strength and weakness. Many adjustments are just an adaptation of a way of working and may also help staff members who are not dyslexic.

## **Examples**

### **Written Communications**

- Give verbal as well as written instructions (this also applies to using voicemail rather than, or as well as, written memos)
- Consider assistive technology such as a screen-reader, scanning pen, text to speech or mind-mapping software



- Provide all hard copy resources on coloured paper (find out which colour helps the person to read best)
- Highlight key points in documents
- Allow plenty of time to read and complete the task
- Use different formats to convey information e.g. audio or videotape, drawings, diagrams and flowcharts
- Use a digital recorder to record meetings, training etc so the employee doesn't have to rely on memory or written notes
- Don't ask your dyslexic employee to minute a meeting
- Computer work
- Change background colour of screen to suit individual preference
- Supply anti-glare screen filter
- Allow frequent breaks, at least every hour
- Alternate computer work with other tasks, where possible
- Verbal communication
- Communicate instructions slowly and clearly and minimise distractions, and check understanding
- Support important communications by supplying the information in more than one format e.g. verbally and using hard copy resources
- Encourage note-taking
- Offer the use of a digital recorder to record important instructions
- Back up multiple instructions in writing or with diagrams
- Concentration
- Reduce distractions for focused tasks (sit away from doors, noisy machinery etc)

- Allocate a private workspace if possible
- Where feasible allow an employee to work from home occasionally
- Provide a quiet working environment for a dyslexic employee by allocating libraries, file rooms, private offices and other enclosed areas when others are not using them

## **Memory**

Calendars, planners and alerts are standard on most computers and phones. Some people also find physical calendars and wall planners useful

Use mnemonic devices and acronyms

General considerations

- Supply a talking calculator if there are numerical difficulties
- Ensure that work areas are organised, neat and tidy
- Ensure the team returns important items to the same place each time
- Ensure work areas are well lit

## **Driving**

- Always try to use the same route
- Show the route and visible landmarks
- Give time to practise going from one place to another
- Supply detailed maps
- Supply GPS car navigation system

More information

ACAS: Reasonable adjustments are often straight-forward

Equality and Human Rights Commission: Employing people and workplace adjustments

Gov.uk: Reasonable adjustments for workers with disabilities or health conditions

## Creating a dyslexia friendly workplace

Alongside meeting legal requirements there are many benefits to raising the awareness of dyslexia in the workplace and creating a dyslexia-friendly work environment. It helps to establish an inclusive culture for all your employees and ensures that individuals can use their strengths, such as atypical problem-solving and creativity. It means that you are striving to support your staff, to get the best from them and the best for your company.

Creating a dyslexia-friendly workplace doesn't have to involve expensive changes. It often just takes some thought, and small changes can make a dramatic difference.

### **Things to consider:**

- Staff awareness of dyslexia, and the challenges and strengths it presents.
- A flexible and supportive approach.
- Introduction of assistive technology.
- Changing communication methods i.e. printing company-wide information on different coloured paper, or in a larger font, or making it available as an audio file.
- A dyslexia-friendly workplace can reduce stress, increase morale and motivation. This in turn can have an impact on reducing staff turnover and sickness leave.

Find out more about how the BDA can work with employers to help you to become more dyslexia friendly on our [Services for Employers](#) webpage.