

## Dyslexia and difficulties with Maths

### Things to look out for

- \* Speed of working: slower than expected in doing simple operation calculations.
- \* Using finger counting (because recall from memory is slow, unreliable, or not available).
- \* Difficulty counting backwards or counting from a different starting point, slower/hesitant.
- \* Difficulties adding columns of numbers – preferring to add up several small sums rather than whole column. Losing track of addition, restarting.
- \* Difficulties with direction, starting in the wrong place. Can do From 75 take away 35 but not Take 42 from 85.
- \* Numeracy has a broad varied range of language. Several words can be used to imply add or subtract and the same word can be used to imply more than one operation: more for subtraction and addition and this can cause great difficulties.
- \* Memorising the order in which to carry out operations.
- \* Difficulty understanding place value, particularly zeros in a number 20, 040.
- \* May also take longer to absorb the patterns of multiplying and dividing by 10, 100, 1,000 etc.
- \* Problems with copying, mixing up lines of work.
- \* Difficulties with new notations.

### Support

Mathematics begins with numeracy, it is these early experiences of number that can be so influential. If these initial problems can be addressed then a dyslexic pupil should be able to achieve good grades in maths GCSE and beyond. If teachers are aware of the potential barriers they can present work in ways, which minimise the effects. Dyslexics will often have difficulty with aspects of numeracy such as learning times tables but can be successful in mathematics. Mathematics is made up of many varied topics such as shape and space, it is not just numeracy.

M Sharma believes there to be “stages of knowing” these are:

1. Intuitive: trying to connect new knowledge with something already known.
2. Concrete level: knows the answer if practical equipment is available.
3. Pictorial: can represent knowledge in pictures, diagrams, tallies etc.
4. Abstract/Symbolic: knows the answer without calculating.
5. Applications: can apply knowledge to real or imaginary situations.
6. Communications: Can explain to someone else.

By using all of Sharma’s “stages” to teach all aspects of maths we can enable pupils to move through them successfully in terms of understanding and knowledge. Many young dyslexic pupils, however, have trouble with understanding and knowledge beyond Stage 3. They take a long time and need repetition and practice on each area before they can move on to stages 4-6.

\* **Numicom** is a great resource for providing practical activities to help these children develop a more secure understanding of numbers and number relationships.

\* Provide concrete examples in conjunction with the written symbols they represent. If base ten blocks or coins are used the operations of + and – etc. can be demonstrated in concrete terms.

\* It is easier for dyslexics than 2D symbols on the board/paper.

\* Multisensory approach, the blocks should be examined visually, touched and moved about in space

\* Rote learning will take an enormous amount of effort for often relatively little success. But dyslexic children should be taught to use their reasoning power to compensate for their weak ST memory:  $7 \times 8 = 56$ ,  $8 \times 7 = 56$ ,  $56 = 8 \times 7$ ,  $56 = 7 \times 8$ . Further regularities/patterns in the number system should be made explicit.

Dyscalculia is defined as a condition that affects the ability to acquire arithmetic skills. Dyscalculic learners may have difficulty understanding simple number concepts, lack an intuitive grasp of numbers and have problems learning number facts and procedures. Even if they produce a correct answer, or use a correct method they may do so mechanically and without confidence. “Purely” dyscalculic – only difficulty with maths, with good or even excellent in other areas of learning.