



## Introduction

Studying mathematics as an adult can be a daunting (or even terrifying!) task. Not only do you need to make progress in your studies, you also need to handle your negative emotions towards the subject as they may hinder you from achieving your full potential.

The purpose of this guide is to give you some ideas and techniques that might help you to handle your emotions better when learning and doing mathematics.

## Your maths self image

The way you view your own mathematical ability is the most important factor in determining your progress and level of future success.

Many people have built up a negative maths self image. This may have formed in response to negative past experiences of mathematics (see the next section) or through social pressures.



Activity

**Activity:** How would you describe your level of mathematical ability to someone you met at a party? How would you describe your level of English ability to someone at a party? If there is a discrepancy between your answers, how much of this is due to your actual ability and how much of it is due to social attitudes towards mathematics?



Activity

**Activity:** Think about a past success in mathematics. How did it make you feel? Did it change the way other people viewed your mathematical ability? What can you now draw from this experience?

## Facing past negative experiences

The second most important factor in handling your emotions is *facing your past negative experiences in learning or doing mathematics*.

Maybe you had a maths teacher you didn't get on with or you found maths boring. Maybe you were put in the wrong maths group and were made to feel stupid in front of your peers. Maybe you got behind in your maths class for personal reasons and found it hard to keep up so you now have big gaps in your understanding. Maybe your parents had unreasonably high expectations for your achievement.

A negative attitude towards mathematics often starts in reaction to negative experiences of mathematics at an early age. However, mathematical skills are important to many professions, so you are not alone in having to face past negative experiences as an adult learner. Consider Albert Einstein's experience:

'Mathematics professor Hermann Minkowski didn't see Einstein's enthusiasm in his classes and called him a "lazy dog".  
(Brian, D. (1997) *Einstein, a life*. Chichester : Wiley).

It may require courage, but if one of the greatest mathematicians who ever lived faced emotional challenges like this, then so can you!



Activity

**Activity:** Find a way of talking through your past negative experiences of learning or doing mathematics, for example:

- **Talk to a friend:** they might secretly be struggling just as much as you or had negative past experiences themselves but have overcome them.
- **Talk to your personal tutor or mathematics support tutor.**
- **Keep a journal** where you express your feelings as you face the challenge of doing mathematical tasks. Keep the journal separate from writing up the tasks themselves. This is all the more valuable if it forms part of your assessment or personal development planning.



Advice

**Advice:** Start by concentrating on an area of mathematics you feel more confident about in order to build up your self esteem. For example, you could use a Nintendo DS Brain Training to practise basic arithmetic. Not only can this be fun but it can give your brain a good workout! It may then help you to approach learning algebra better.

## Specific Learning Differences

Some people have emotional problems with learning and doing mathematics because they have an unidentified special need (known as a Specific Learning Difference or Difficulty or SpLD), the most common being *dyslexia* and *dyscalculia*. **Specific Learning Differences are not a sign of a lack of general intelligence** as many people with Specific Learning Differences are highly intelligent.

**Dyslexia** is the most common Specific Learning Difference and is to do with coping with the *mechanical aspects of written language*. Dyslexic people **nearly always have problems with spelling**. They often experience difficulty with reading and frequently also with aspects of mathematics, such as sequencing or learning tables and formulae. The major characteristic of dyslexia is a gap between what you know, understand and say, and what your work looks like on paper.

**Dyscalculia** is an **inability to effectively connect with number and mathematics**. It may include difficulties in recognising, reading, writing or conceptualising numbers, understanding numerical or mathematical concepts and their inter-relationships. Dyscalculics may have difficulty with numerical operations, both in terms of understanding the process of the operation and in carrying out the procedure. Further difficulties may arise with dependent systems such as time, money, direction and more abstract mathematical, symbolic and graphical representations.



Advice

**Advice:** If you think you might have a Specific Learning Difference:

- Try a self checklist, e.g. [http://ddig.lboro.ac.uk/self\\_check\\_list.html](http://ddig.lboro.ac.uk/self_check_list.html)
- Talk to someone in confidence in Student Services about taking an official screening test.
- If you are officially identified with a Specific Learning Difference then you will be provided with additional support (such as one-to-one tutorials or extra time in exams) so that you are not disadvantaged.
- Even if you are not officially identified with a Specific Learning Difference you may still have a mild form and might benefit from relevant advice.

## Maths anxiety

Anxiety towards mathematics is a common negative emotion. It is not a Specific Learning Difference itself but it often accompanies one. Maths anxiety is particularly difficult to handle because it affects working memory capacity, thus reducing performance even further. Maths anxiety can result in physical signs, such as sweating, rashes or an increased heart rate.



Advice

**Advice:** If you think you suffer from maths anxiety:

- Seek counselling or advice from a professional counsellor.
- Try to identify at what level of complexity your anxiety problems start so that you are objective about what you can do on your own and when you need to seek additional help.
- Talk to a friend or a tutor whilst you are working through a maths problem so they can help you to sequence your tasks and separate your feelings from your mathematical thinking.
- Have a look at Arem, C. (2009) *Conquering Math Anxiety*, 3<sup>rd</sup> edition, Florence, KY: Brooks/Cole



Reference

As your performance improves, your level of anxiety should decrease.

**Academic Skills Centre** Library and Learning Resources  
Galton Learning Centre G312: City North Campus: 0121 331 6296  
Edge Learning Centre: City North Campus: 0121 331 5201  
Millennium Point Learning Centre: 0121 202 2500  
Guide written by Peter Samuels, 2010  
**Further online guides:** <http://library.bcu.ac.uk/learner/Guide%20Index.htm>