



## Maths tips for students with learning difficulties and disabilities

SUPPORT AND STRATEGIES FOR E-LEARNING ENVIRONMENTS

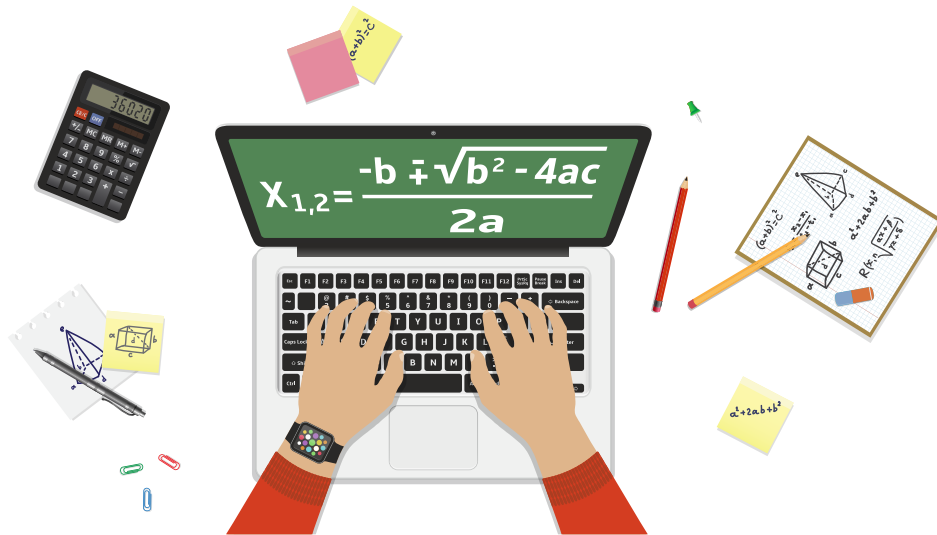
The following are practical tips to support secondary school students with learning difficulties in the context of online/remote learning with a particular focus on mathematics. These have been developed to complement the different modes of service delivery and support that schools are providing during this time. While the focus here is on students experiencing difficulties with learning, these strategies may be helpful for all students learning mathematics when learning remotely or in the classroom.

Each student's school will have their own approach to the delivery of online learning and many will provide parents with guidance and assistance so they can provide the support their child's needs. Parents can assist by modelling a positive attitude towards mathematics, and adopting a 'learning from your mistakes' attitude. They can also try to bolster interest and progress through 'learning opportunities' in the home. This may be a time where parents can gain more insight into their child's challenges, needs and strengths to inform approaches to learning support.

### General tips for secondary school students

For middle-to-senior school students, the tips are more curriculum-focused and attempt to provide practical assistance for students directing their own learning. Students with significant difficulties may want to go back to some of the basics and refer to some ideas from the primary school tip sheet on the APS website.

- Use **concrete materials** or relate the maths concepts/questions to practical situations. For example, if the maths problem is about how to stack boxes on a pallet, use a few boxes to model the problem, or if the task is multiplying decimals try to relate the problem to money ( $0.12 = 12$  cents).
- There are **free and subscription online maths activities** that allow you to review concepts at your own pace and with as much repetition as needed. These resources



can also help you to gain a basic understanding of math content before it is taught in the 'classroom'. Your school may have a subscription, or your teacher may be able to make a recommendation.

- **Frequent regular maths sessions are better than marathons.** Students with maths learning difficulties have trouble retaining maths information so regular refreshers are helpful. Making detailed notes, including examples, at the time of learning and practising, may be helpful when studying for exams at a later time.
- **Doing small amounts of maths is often helpful for procrastination too.** Students should schedule their maths work at a time when they will have the most energy and reward themselves for getting through a set amount of problems.
- **Generally new maths concepts are taught with simple examples** to relieve the burden of basic calculation and allow students to focus on the concept. Using a calculator can be helpful in that it reduces the emphasis on basic calculation and allows you to demonstrate knowledge of the concept.
- **Highlight key words and numbers** in a presented problem and use a multi-sensory approach. For example, write out the problem; talk through the problem; draw the problem. Teach someone else what you have learnt.
- **Ask the teacher for assistance.** Teachers should be able to help differentiate a maths learning program, guide you in what to focus on, and clarify specific vocabulary. Teachers can provide step-by-step worked examples that you can refer to. And remember, if you don't submit anything the teacher can't know how you are progressing and where they can best assist.
- **Rephrase the question** using your own words to ensure that you have understood it and attended to all the details.

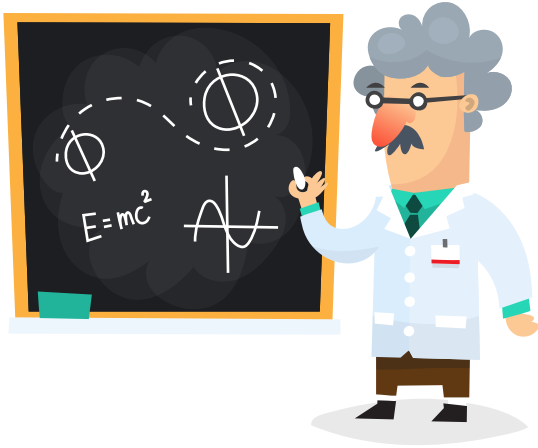
- **Use the KNOW acronym** for worded problems:
  - Key words:** look for the important words that help you to understand what type of problem it is (e.g., 'shared between' indicates division is needed; words like 'more' or 'less' tell you important information. Underline the key words).
  - Numbers:** what are the numbers you need to solve the problem? Circle these.
  - Operations:** from the key words you have underlined – what operation signs should you be using? E.g., x or + or – or /
  - Write it down and work it out:** write down the problem using the numbers and operations you need and find the answer.

### Check work

Does the answer make sense? Have you missed any steps? Have you provided the answer in the terms requested?

### Set realistic goals and anticipate issues

- Make sure that expectations are realistic.
- Don't expect too much at once.
- Set goals for each task.
- Write a list of potential roadblocks and problem-solve these in advance. For example, a *distraction* roadblock might be problem solved by:
  - Working in a clear and quiet space which minimises potential distractions
  - Turning off phone and email when working.
  - Allocating a specific time/s each day when you are allowed to check phone messages and email and respond. It is important to stay connected with friends, but this needs to be managed.
  - Setting an alarm so that you don't get too absorbed when responding to messages.



### Finding extra support

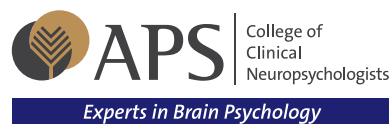
If your child needs clarity and assistance as regards their learning challenges referral to an appropriate psychologist for a detailed assessment and advice may be warranted. For example, a paediatric neuropsychologist can provide a differential diagnosis and strategies, and direct you to an appropriate special education tutor or any other healthcare specialist that may be required.

### Engage with maths in creative ways

- Learn about the mathematicians behind the most famous maths theories – read about them or watch a documentary online.
- Watch videos about ways in which maths can be used in useful or creative real-life situations (e.g., Eddie Woo)
- Research ‘maths in nature’.
- Look into the relationship between maths and amazing discoveries in science, technology, archaeology and history.

### Acknowledgments

This resource was prepared by the:






A clinical neuropsychologist is a psychologist who is trained to understand brain-behaviour relationships (across the lifespan):

- To assess thinking/brain abilities and difficulties to clarify diagnosis and identify the client’s care needs and priorities
- To provide targeted intervention or rehabilitation for people with thinking/brain-related difficulties or disorders
- To adapt or modify treatments to take into account the effects of thinking/brain difficulties

The APS has other information sheets in this series to support children and teens with learning difficulties and disabilities. To access, visit: [psychology.org.au](http://psychology.org.au) for more.

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