Maths tips for children with learning difficulties and disabilities

SUPPORT AND STRATEGIES FOR E-LEARNING ENVIRONMENTS

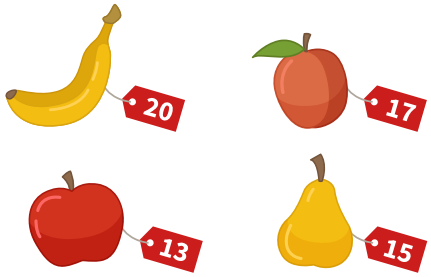
The following are practical tips to support primary school students with learning difficulties and disabilities in the context of online/remote learning with a particular focus on mathematics. These have been developed to complement the different modes of service delivery and support that schools are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

General tips for primary school students

In the primary years, the focus is on learning opportunities in the home and ways to help your child engage positively with mathematical ideas and to share learning moments in everyday family activities.

- *Cooking* is helpful for learning about measurement, volume, addition, subtraction and time. For example, baking provides the perfect activity for children to learn about volume, weight and fractions. They can have lots of fun with measuring flour, sugar and so on and see if two half-cups really fit into one full-cup, for example. Try making a cake or pie and sharing it between eight people... what fraction is one piece? What fraction are four pieces? Try making twice the recipe or half the recipe to practise fractions further.
- *Plan a shopping trip*. Create a scenario where you tell your child that you have 'X' amount to spend on a list of items that you want to buy online. Ask them to add up to amounts of the products that they find online, and to determine for you whether you have enough money or what change you will have left. You could also do this activity using shopping catalogues, and increase complexity by adding discounts or percentages off.
- Using empty milk bottles or containers for *measurement activities* for example, half full/three-quarters full with rice or water. Which is heavier? Which holds more?
- Measuring rugs or tables for *length and perimeter exercises*. You could also cut string into different length

pieces, write down their measurements on separate bits of paper, and then ask your child to measure the pieces of string themselves and match it with the correct length. They could order them from smallest to biggest.



- Ask your child to help you to *add up* the cost of groceries.
- *Track the weather* predictions and graph them on paper.
- Create a *number line* using chalk outside or write numbers on sticky notes and ask your child to place them in order on the number line. You could even paint a dotted number line – the painted dots can represent the value of each number on the line. This aims to help your child visualise what each number means, and they can see how numbers 'grow' from left to right. Number lines are great for children who are learning to sequence numbers, but also for older children learning about fractions, decimals, or negative numbers.
- If your child earns *pocket money*, teach them how to divide their money up into different jars for different purposes – for example, a jar for saving, a jar for spending, and a jar for giving. They can count out their money and work out how much they should put in each jar from the amount of money they have. Then they can set a goal for each jar and calculate how much more they need to earn and how long it will take them. In addition, have them pay for a fraction of what they want to buy and get them to work out how much they need to save; start with simple fractions such as half and move up to three quarters or two thirds.
- Use *concrete materials* to assist with sums. For example, ice-block sticks or spaghetti can be used to represent the ones, 10s and 100s on a piece of white paper for a range of sums – i.e., draw lines so columns are readily visible and when regrouping or 'borrowing' then one group of ten sticks (bound with an elastic band) becomes ten sticks, while one group of 100 sticks

Turn maths into *art or a story*. Imagine that the symbols in maths (plus, minus, multiply, divide) are all characters in a magic land. Draw the characters and write about their job and situations when they need to use their special skill! For example:

Plus is a greedy gnome who always wants to add more to what he has! He even steals from others sometimes!

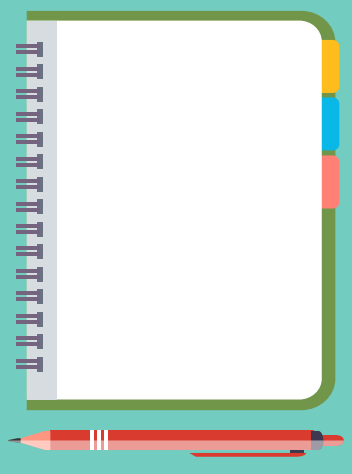
Minus is a naughty elf who likes to play tricks on others by taking away things from them when they are not looking.

Divide is a lovely fairy who thinks it's very important to share – she always cuts up her cakes and sandwiches so that there is enough for everyone.

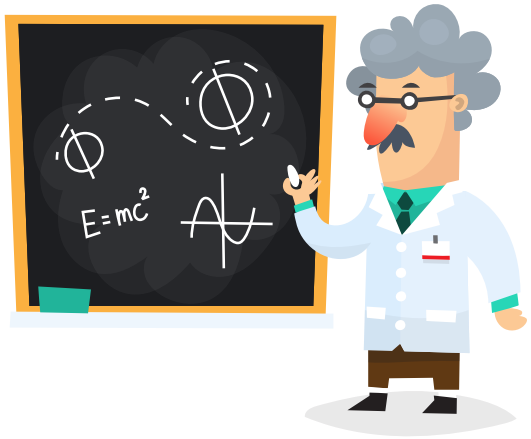
Multiply is a fairy who uses her magic to make sure that things are plentiful – for example, she is very useful when the other creatures all want the same dress or toy, or they need lots of apples for a recipe – with a flick of her wand she can create many more identical versions of whatever it is they want.

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 solved by:**
  a. **Learning in a clear, quiet space which minimises potential distractions.**
  b. **Turning off phone and email while learning.**
  c. **Allocating a specific time/s each day when students are allowed to check phone messages and email and respond. It is important to stay connected with friends, but this needs to be managed.**
  d. **Setting an alarm so that students do not get too absorbed when responding to messages.**



(bind 10 groups of 10) becomes 10 lots of 10 sticks. This way your child will better understand regrouping procedures.
- Make *learning the times tables fun*. e.g., play 'times tables snap' or 'times tables memory' where your child has to match the question with the answer or practice times tables by asking them a times table question whenever they catch a ball or score a basketball goal. They get extra points for a correct answer.
- *Squeebles maths apps* are fun and useful.
- Learn about *probability and chance* with games like rock, paper, scissors, or lucky dip.



Engage with maths in creative ways that are interesting to you:

- Learn about the mathematicians behind the most famous maths theories – read about them or watch a documentary online.
- Watch videoclips 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.

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 for more.

Finding extra support

If your child needs clarity and assistance with regards to 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.

Acknowledgments

This resource was prepared by the:

APS College of Clinical Neuropsychologists

Experts in Brain Psychology

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

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

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