

## Resource list for maths challenges

by Aimée Engler

My philosophy for teaching children maths is

Teach everything slowly, sequentially, and one concept at a time.  
Do not assume implicit learning.  
Practise strengthens what's been learned.

This means you'll need to be really creative to keep them engaged in learning the same thing over a long period of time, and to use resources that aren't age-restrictive (ie. some curriculum or on-line learning are great for content but presentation is for really young kids). I've listed below resources within both areas that I've used personally or have heard of that sound good for kids with learning challenges. There are undoubtedly lots of other resources out there that will also be appropriate and as I come across them I shall update this list to include them.

Note: an additional philosophy I have when teaching maths is that it can be broken into 2 different spheres with both impacting the other. They are equal in importance so try to incorporate learning within both. I will organise the list to reflect these categories:

1. background processes such as logical thinking, problem solving/strategy and spatial reasoning.
2. typical maths concepts (addition, subtractions, geometry, etc)

### 1. Improving other processes

#### *Board games*

Any will probably do however there are more maths specific ones out there such as sequence, uno, qwirkle, ticket to ride, yahtzee ... the list is endless.

#### *Classic paper-based logic puzzles*

No doubt there are lots out there however I discovered [Aha! Puzzles](#) has some great ideas, all free. These can be printed or done on-line. There are easier ones for kids and harder for adults (or easier for adults, harder for kids if that's what's needed!).

#### *Digital games*

There are many games available (similar to board games, really), however 2 I can mention are [Bad Piggies](#) and [Minecraft](#). The controversy about Minecraft is endless but it still belongs on this list regardless of whether you choose to use it.

#### *Jigsaw puzzles*

#### *Lego*

Nothing bad can be said about lego! Except when it comes to walking across a room that has it spread out on the floor. Then several bad things can be said about it...

### [Smart games](#)

While there are a few different companies out there that produce logic puzzles, I've found Smart Games to be a cut above because of their cute little characters and final product. They produce a whole range of amazing physical games, as well as some [computer games](#) and [apps](#). The games start easy and then get progressively more challenging. Most are single player but there is some [multi-player](#), and even the single players are recommended to be collaborative. Bonus is that they rarely require reading.

## **2. Maths concepts**

### *Baking/cooking*

#### *Board games*

Most board games have a maths component (at the very least addition).

Some examples of specific concepts learned are:

- Risk and Risk Jr (number sequencing, probability),
- [Zingo Time-telling](#) (um... telling the time),
- Pop to the shops (money),
- Monopoly (money, how to hate each other)
- [Smart kids](#) (too many to even begin to describe)

#### *Card games*

A quick internet search will bring up loads of possibilities to play and practise with, but look for ones which teach specific concepts, for example [Childhood 101](#). Greg Tang and RightStart Maths also include card games so look at their entry if you're keen.

### [Greg Tang resources](#)

Heaps of resources are available that are 'outside the box', including storybooks (teaching a concept + practise without pencil and paper), on-line games, card games, board games, work sheets and subscriptions. Quite a bit is free. Keeping up with the recommended age is hopeless with dyscalculia however if you aim for a few year levels below then it's a bit of fun!

#### *Manipulatives*

You can buy manipulatives brand new or second hand. You can also make your own! (Why buy counters when you can just use beans...?). Here's a list of [some](#) to consider:

- 100 board
- number lines
- dice (6 sided, 12 sided, blank, giant, teensy...)
- counters
- Cuisenaire rods
- base 10 blocks
- abacus
- storybooks
- play clocks
- play money

There are heaps more out there! If you'd rather not clutter up your physical space then check out some [on-line versions](#), though there is much to be said about the kinesthetic value of a physical resource.

#### [Maths U See](#) curriculum

- Pros
  - Sequential.
  - Teaches one concept at a time.
  - Allows for lots of practise, which is good.
  - It has an excellent manipulative based on Cuisenaire rods.
  - Each lesson is accompanied by a video which is great for explaining concepts (I think the aim is for parents to watch the DVD then teach the kids the content but why would you do this when the child can watch it themselves?).
- Cons
  - The amount of work within one lesson is a LOT and overwhelming (you do have the freedom to break it up and only do a bit each time though).
  - The single manipulative, while great, is not enough.
  - Expensive.

#### [Odd Squad](#)

A TV show. IMDB ranks it for ages 5-8 but older kids will definitely enjoy it.

#### *On-line curriculums or games*

I haven't actually used any of these programmes but was recommended them as good for dyscalculia from other sources.

- [Teach your monster number skills](#)
- [IXL](#)
- [Prodigy](#)
- [Khan Academy](#)

### *Paul Swann resources.*

This Aussie is passionate about maths! His website has stacks of easy-to-understand [videos](#) on teaching concepts, manipulatives reviews, activities and game suggestions, etc. He has heaps of free downloads of puzzles and booklets explaining stuff, as well as some paid resources. It's geared more towards teachers however homeschoolers are sure to get a lot from him.

### [RightStart Maths](#) curriculum

- Pros
  - Sequential.
  - Teaches one concept.
  - Short lessons/less work expected.
  - Lots of practise.
  - Stacks of manipulatives and games.
- Cons
  - Very parent-intensive (ie. you deliver the lesson, you play games with them).
  - Expensive.

### [Smart tray](#) (*Junior Learning*)

Numbers, calculation, fraction, place value. Smart tray is an updated, easier to find version than Starter Stile, though not as many sets were made (only 2 sets in each category). It also moves much quicker through the learning and is definitely just a fun addition to whatever the child is learning.

### [Starter Stile](#) (*The Learning Ladder*)

Numbers, shapes and calculations. It's a bit fun and moves slowly and systematically, giving kids time to move through the different concepts. It involves movement, no writing, multiple choice, visual representations, multiple choice, and self-checking capability. It's not a complete curriculum but does a good job at moving alongside one. Unfortunately this programme is hard to get but there are second hand ones floating around.

### *Story books*

There are some great maths story books out there, such as the [Sir Cumference book series](#). A pretty good list of what's available can be found on the website [Maths Through Stories](#), all nicely sorted for you into age and concept.

### [Usborne](#)

I love Usborne books in general as they're so well presented! They also do maths activity books and puzzle cards, as well as lift-the-flaps info books. These are good for consolidation of facts learned rather than teaching.