

# Fluency with flexibility

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Back to Front Maths

While fluency is not the be all and end all of maths, having a bank of known facts and strategies that you can use efficiently, accurately, appropriate and flexibly is definitely an asset! Here are some principles to keep in mind as well as a few really simple strategies to improve your students' fluency.

## Principle 1: Loops not Lines

We usually teach in a fairly linear fashion – one topic follows the next. This means that kids often don't touch on topics for months at a stretch, leaving plenty of time for skills to go rusty and memories to decay. Recent research by John Ley showed that students were more engaged, confident, less stressed and had higher academic performance with one change to a traditional lesson: teachers asked students *five questions* from different topics within the curriculum at the beginning of every maths lesson, rather than sticking with a single topic for a unit. The first four questions focused on procedural fluency (a question from yesterday, last week, last month and next week), and the fifth question required problem solving.

### Hot tip:

Begin each lesson with four questions covering different topics

- One from yesterday
- One from last week
- One from a month or more ago
- One that is coming up next week

## Principle 2: Tiny pockets not long stretches

Rather than spending long stretches of time practicing procedures, try using only a few questions but then coming back to them often throughout the day. We often have lots of tiny pockets of somewhat wasted time in primary schools that can be really useful for fluency such as lining up or marking the roll. Here's a great article on how to make best use of this time and [buy yourself an entire hour](#) of teaching time in a week.

### Hot tips:

- Keep 4 dice in a container that you can take anywhere with you. Shake the container to roll the dice, then use any or all of the numbers to get as close as possible to a total.
- Pair students up and ask them to work with their partner to show numbers of fingers. E.g. Show 8 fingers between you, but you can't use the number 2.

## Principle 3: Focus on Flexibility

A formula that can be used for only one procedure is a terrible formula! Most mathematical formulae are based on underlying connections and can therefore be applied in many different situations. For example, why teach  $\text{Area} = \text{Length} \times \text{Width}$  when using  $\text{Base} \times \text{Height}$  instead allows the formula to be easily adapted to triangles, parallelograms and trapeziums? For that matter, why not teach area when we are already teaching the use of arrays to multiply and divide numbers?

### Hot tip:

Think of three different topics or types of questions that relate to the once underlying concept. Teach all of them at the same time and make the connections explicit.

**For more ideas** on how to build fluency you might like to check out this article on my [Top Ten Rotation Group Activities](#) and download the templates to make your own games.