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**Maths Fluency at Bleak Hill**

How do we get learners to become fluent?

Fluency is one of NCETM’s *‘Five Big Ideas of Teaching for Mastery’* where it’s defined as “quick and efficient recall of facts and procedures and the flexibility to move between different contexts and representations of mathematics”.

But what are the stages our learners go through in order to become fluent? And how do we decide if a child has attained fluency in a mathematical concept?

**Three stages of fluency**

**1. Simple strategies**

Initially, as a child gets to grips with a new skill, they can work out an answer using concrete resources or counting strategies. This will probably help them solve a problem accurately, but it’s not the most efficient strategy.

**2. Mental calculations**

As learners become more proficient with new learning, they reach the second stage of fluency. Learners at this stage can work out an answer in their head. It still requires some thinking and effort as they develop reasoning strategies, but they’re well on their way to becoming more efficient.

**3. Achieving fluency**

Finally, children reach the stage of ‘I just knew it’. They can reliably produce accurate answers in an efficient way. This stage often involves using their knowledge flexibly; making connections so that the known can be used to work out the unknown.

In the words of Mark McCourt, “we consider someone to be fluent in a technique, procedure, idea, concept or fact at the point at which they no longer need to give attention”.

**How do you know when a learner is fluent?**

You can identify a fluent learner when they have a secure understanding of what they’re doing and why they’re doing it. Researcher Dr Susan Jo Russell thinks fluency is made up of three key parts: **efficiency, accuracy, and flexibility.**

* **Efficiency**: learners choose efficient strategies and don’t get bogged down in too many steps
* **Accuracy**: learners are accurate in their workings, have great recall of facts and double check their answers
* **Flexibility**: learners understand that there are many ways to solve a problem

Fluency means that learners can do more than just memorise procedures. To be truly fluent, a child understands the meaning of the operations and their relationships to each other, they have a large knowledge bank of number facts, and a deep understanding of the base ten system.

**How to build fluency in your classroom**

Children can’t instantly use their mathematical knowledge without having to think about what they are doing. It’s the opportunities for practice that helps them reach an effortless stage of fluency where they can apply their knowledge to solve unfamiliar problems.

So, what does effective fluency practice look like and how can you build it into your teaching?

**Use regular sessions to build fluency**

Give learners a chance to practice their skills with separate fluency sessions that happen at a different time to the daily maths lesson. Sessions usually last between 15 and 30 minutes and typically schools schedule them for four or five days a week.

Adding separate practice sessions with a focus on fluency gives learners the chance to work on maths in two different ways, without taking away from the work in the main lesson.

Your fluency sessions could be at a planned time each day: first thing in the morning, straight after lunch, or before or after assembly or break. If you teach younger children, try to grab any opportunity for fluency throughout the day.

**Make every session count**

Time with our learners is precious. If you’re going to dedicate extra time each day to maths, you need to make sure that time is used as effectively as possible. How can we decide which topics to cover when working on fluency?

One popular approach is to revisit topics taught last week, last month, last term, and last year. You could also revisit a topic already taught this year and then review one from last year (worked on at last year’s level) so that learners are ready for when you reach this topic in your teaching sequence.

Whole-class counting is another easy-to-include activity. Choose whatever increment is relevant to the year group and don’t underestimate the challenge or importance of counting in fractions, decimals or negative numbers, or starting on numbers other than zero. Finding opportunities to work on each of the four number operations during this activity also helps secure children’s learning.

**Try games and quizzes**

Low-stakes quizzes are increasing in popularity, and for good reason. Quizzes support learners’ recall skills of prior learning.

Games and activities which encourage children to think are really effective alongside low-stakes quizzes. It’s important that fluency sessions don’t generate unnecessary written work — remember, you’re practicing not testing. The point is to have an impact on learner recall, not to increase teacher workload. In a maths mastery classroom, we want children to make connections between and within their learning to strengthen their understanding.

When learners have a range of efficient strategies at their fingertips, they’re comfortable applying their knowledge in different situations. Building mathematical fluency gives them the skills and confidence necessary to succeed as mathematicians.

**References**

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