



Big Ideas of Mastery: Fluency

Messages

1. Fluency demands more of learners than memorisation of a single procedure or collection of facts. It encompasses a mixture of efficiency, accuracy and flexibility.
2. Quick and efficient recall of facts and procedures is important in order for learners' to keep track of sub problems, think strategically and solve problems.
3. Fluency also demands the flexibility to move between different contexts and representations of mathematics, to recognise relationships and make connections and to make appropriate choices from a whole toolkit of methods, strategies and approaches.

For example:

Quick and accurate recall of all multiplication facts up to 12×12 is important in order to free working memory to see the big picture and make decisions about when to use this knowledge to solve certain problems.

However, if a pupil only knows these facts as an unconnected collection of memorised phrases and does not know:

- that 8×6 is the same as 6×8 or twice 4×6 or 12 less than 10×8 ;
or
 - does not know the connection between 6×8 and 16×8 or 6×80 or 0.6×8 ;
or
 - when faced with a problem of finding how many books are in a bookcase with 8 shelves and 6 books on each shelf, does not know what mathematics to use
- ... then they have not attained fluency.

What I have tried

What I found: