





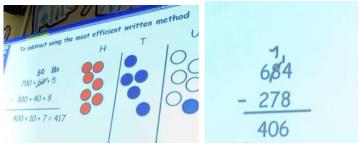
Big Ideas in Mastery: Mathematical Thinking

Messages

- 1. Mathematical thinking is central to deep and sustainable learning of mathematics.
- 2. Taught ideas that are understood deeply are not just 'received' passively but worked on by the learner. They need to be thought about, reasoned with and discussed.
- 3. Mathematical thinking involves:
 - o looking for pattern in order to discern structure;
 - looking for relationships and connecting ideas;
 - o reasoning logically, explaining, conjecturing and proving.

For example:

Asking "what's the same and what's different?" in a range of situations prompts and promotes mathematical thinking



Asking pupils to explain, convince, draw diagrams to illustrate an idea or strategy, reason and conjecture as a natural part of all activity in the mathematics classroom supports deep and sustainable learning.