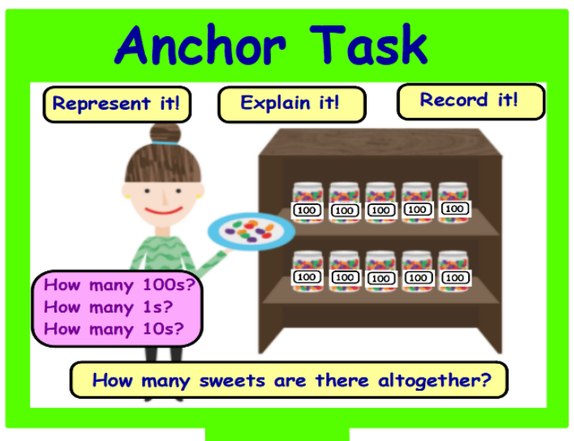
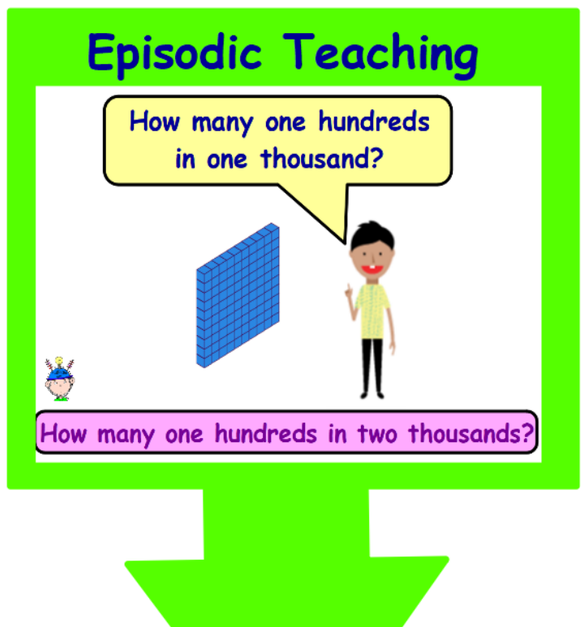
# MATHS LESSONS

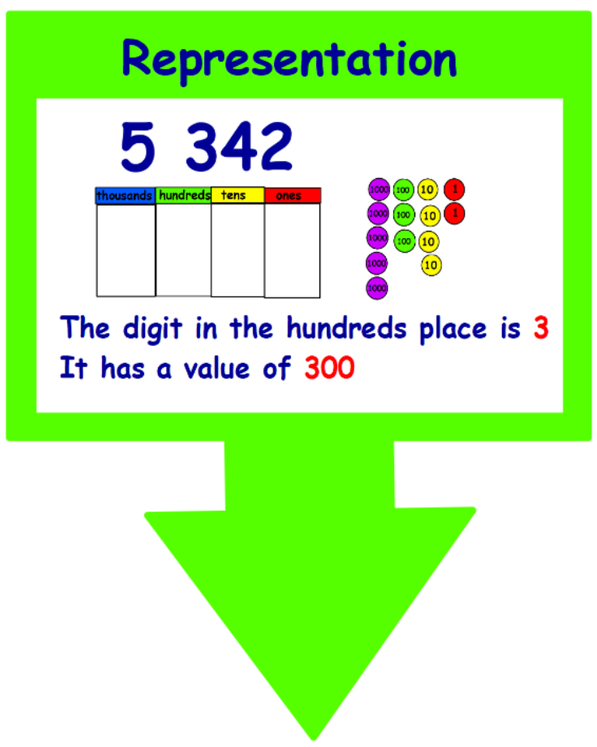



Lessons begin with a problem (usually linked to a context) students explore, represent, discuss in mixed prior attainment pairs, using concrete resources. Anchor tasks are designed to enable access for all, whilst also offering challenge. During this time teachers/TAs circulate, observe & assess.


Responding to observation during the anchor task, the teacher draws out the maths through discussion, sharing of ideas & questions to lead the learning forward. Students model ideas at the board, using precise mathematical vocabulary in full sentences to explain ideas.




Teaching is episodic throughout the lesson. The teacher is assessing & responding, checking & challenging through questions. Multiple representations are used to reveal the concept. Teacher modelling at the board & children modelling. Strategies are compared & evaluated.

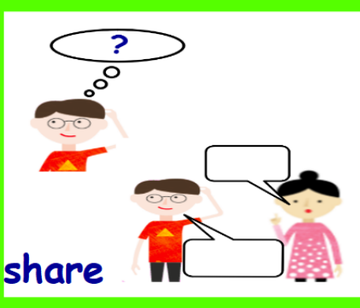



Representations, including 'stem sentences' are used to reveal the concept.
Through carefully planned variation, one concept is looked at in different ways. These representations support access & enable students to spot patterns, make connections & understand more deeply.

## Lesson Structure

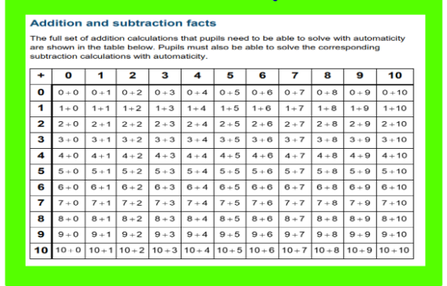
Students think hard & share thinking with partners & the class. Teachers consider the 'tricky bits' & potential barriers as lessons are designed. Common misconceptions are exposed & addressed. Opportunities for deeper thinking are planned for carefully.

**Show, think, discuss ... & share**




Fluency is taught within lessons & developed through additional practice outside of maths lessons (daily fact fluency sessions & homework).

**Fluency**



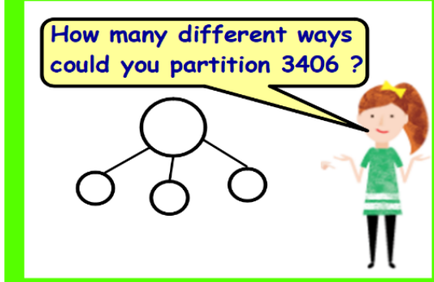
**Addition and subtraction facts**

The full set of addition calculations that pupils need to be able to solve with automaticity are shown in the table below. Pupils must also be able to solve the corresponding subtraction calculations with automaticity.

| + | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0+0 | 0+1 | 0+2 | 0+3 | 0+4 | 0+5 | 0+6 | 0+7 | 0+8 | 0+9 | 0+10 |
| 1 | 1+0 | 1+1 | 1+2 | 1+3 | 1+4 | 1+5 | 1+6 | 1+7 | 1+8 | 1+9 | 1+10 |
| 2 | 2+0 | 2+1 | 2+2 | 2+3 | 2+4 | 2+5 | 2+6 | 2+7 | 2+8 | 2+9 | 2+10 |
| 3 | 3+0 | 3+1 | 3+2 | 3+3 | 3+4 | 3+5 | 3+6 | 3+7 | 3+8 | 3+9 | 3+10 |
| 4 | 4+0 | 4+1 | 4+2 | 4+3 | 4+4 | 4+5 | 4+6 | 4+7 | 4+8 | 4+9 | 4+10 |
| 5 | 5+0 | 5+1 | 5+2 | 5+3 | 5+4 | 5+5 | 5+6 | 5+7 | 5+8 | 5+9 | 5+10 |
| 6 | 6+0 | 6+1 | 6+2 | 6+3 | 6+4 | 6+5 | 6+6 | 6+7 | 6+8 | 6+9 | 6+10 |
| 7 | 7+0 | 7+1 | 7+2 | 7+3 | 7+4 | 7+5 | 7+6 | 7+7 | 7+8 | 7+9 | 7+10 |
| 8 | 8+0 | 8+1 | 8+2 | 8+3 | 8+4 | 8+5 | 8+6 | 8+7 | 8+8 | 8+9 | 8+10 |
| 9 | 9+0 | 9+1 | 9+2 | 9+3 | 9+4 | 9+5 | 9+6 | 9+7 | 9+8 | 9+9 | 9+10 |
| 10 | 10+0 | 10+1 | 10+2 | 10+3 | 10+4 | 10+5 | 10+6 | 10+7 | 10+8 | 10+9 | 10+10 |

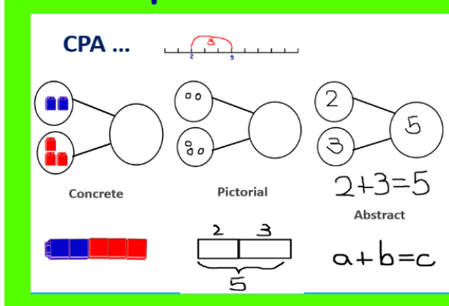
A split lesson with a break-time thinking question provides time away from the classroom for students, allowing time for new learning to connect with prior knowledge. After a break, children return, refreshed, ready to think hard, ready to work independently & the teacher has had time to respond to the first part of the lesson appropriately.

**Split Lesson**

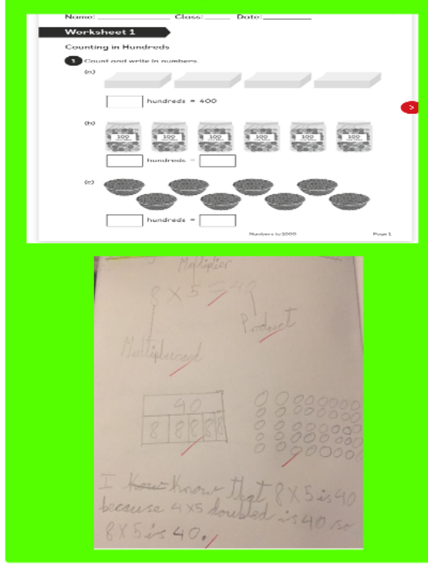


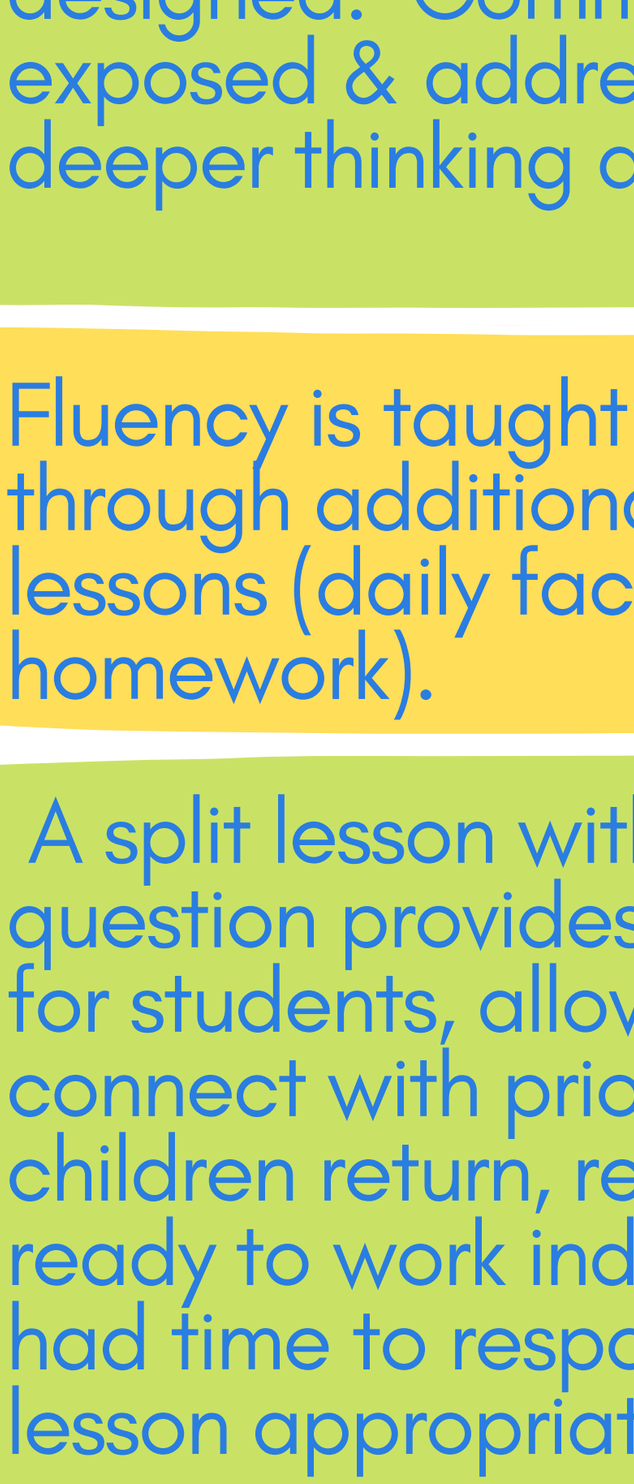

By the second half of the lesson, effective use of the CPA approach & skillful teaching enables students to move away from concrete representations & start to work independently. Practice books contain 'intelligent practice' - tasks designed using variation, which encourage deep thinking whilst working on the questions, rather than working through the questions quickly to produce answers.
In Maths Journals students record diagrams, explanations, their own problems, investigations - all providing rich assessment data, revealing how deeply a concept has been understood.

**Representations**




**Learning in Books**




Lessons are designed around the 'five big ideas' of Teaching for Mastery (NCETM). And a DfE approved textbook is used to support planning.