



These vignettes seek to represent current practice in schools: not best practice, nor poor practice. They prompt reflective questions for school leaders and teachers regarding their existing practices in supporting the development of mathematics teaching.

### Scenario 1:



#### 'Procedures for adding fractions'

A Year 7 class are studying addition of fractions. With an end-of-topic assessment looming, their teacher shares a procedure for adding together two fractions.

Many pupils use this procedure accurately, both during the lesson and in the assessment which follows, but subsequent work on fractions, including work on adding three fractions and on multiplying and dividing fractions, is less successful with pupils often forgetting steps in the procedure or applying it outside of its usefulness.

$$\frac{2}{5} + \frac{3}{8}$$

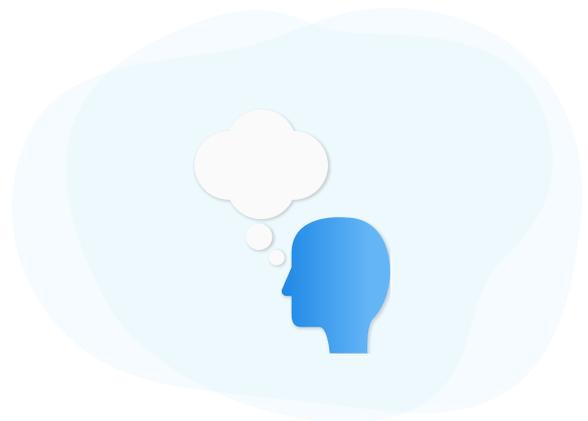
**Step 1:** Multiply the two denominators together—this gives the denominator of the answer. ( $5 \times 8 = 40$ )

**Step 2:** Cross multiply the fractions and add the results—this gives the numerator of the answer ( $16 + 15 = 31$ )

**Step 3:** Write the numerator over the denominator and simplify if possible ( $\frac{31}{40}$ )

#### Reflection questions:

- How can we ensure that pupils understand the mathematical procedure they use?
- Why is it desirable for pupils to understand as well as be able to apply mathematical procedures?
- Do we allow sufficient time for this understanding to develop?



Procedures are undoubtedly a part of mathematics teaching, and their use provides a structure for solving problems which are similar to those met previously. But pupils are able to apply these procedures most effectively when they understand how the procedures work and in what circumstances they are useful.

Fluent recall of procedures is important but so is time spent on developing understanding. This will enable pupils to reconstruct steps in a procedure that they have partially forgotten.



