

Subtracting Multi-digit Numbers (Grade 4/5)

Example: 1205 - 237

4.1 Stages of Expertise

Consider a learning goal of a lesson you're using this week. What might each stage of expertise look like?

Students may skip forward on a number or start at the wrong number.

Students are aware of the strategies being taught, but are not sure how to properly and accurately use methods like decomposition, number lines, or stacking.

$$\begin{array}{r} 1000 - 0 = 1000 \\ 200 - 200 = 0 \\ 0 - 30 = 0 \\ 5 - 7 = 2 \\ 1002 \end{array}$$

Consciously Incompetent

CONSCIOUSNESS

2

$$\begin{array}{r} 200 - 200 = 0 \\ 1005 - 37 = \\ 1005 - 5 \text{ and } 37 - 5 = \\ 1000 - 32 = 1000 - 30 = \\ 970 - 2 = 968 \end{array}$$

Consciously Competent

3

Students use the strategies taught (decomposition, stacking, number line) to solve a problem. They are feeling a little more comfortable each time.

$$\begin{array}{r} 1205 \\ -237 \\ \hline 0 \quad 1100 \quad 90 \quad 15 \\ 1000 + \cancel{200} + \cancel{0} + \cancel{5} \\ 200 - 30 - 7 \\ \hline 0 + 900 + 60 + 8 = 968 \end{array}$$

Understanding correct movement on the number line and starting location (ex: adding on).

5

Consciously Masterful

Students may attempt to solve problems with visuals in their heads and experiment with other methods to solve the problem. Effectively use estimation to help them. Can articulate their thinking and reasoning to the problem.

Students may use the same strategies, but solve them different ways based on the numbers given to them. Explain why they chose a certain strategy (i.e. rounding because 1205 is close to 1200 or a number line because they can tell the difference between the numbers is not too large).

Unconsciously Incompetent

1

COMPETENCE

4

Unconsciously Competent

Students may attempt to stack the number because have seen that in the past, may not understand why they or stacking them or if they are doing it right.

$$\begin{array}{r} 1205 \\ -237 \end{array}$$

Students may not understand how to regroup

Students may automatically know that they will use a number line or decomposition to solve the problem and are comfortable in solving the problems given. Understand the stacking method and why it works.

Similar strategies and responses to the previous stage, students may pick a strategy that works well for them. They can explain why they chose that particular strategy.

