



Procedural Fluency - Being Able to Choose and Use an Efficient Strategy to Solve a Problem

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1 Procedural fluency is being able to use and choose an efficient strategy to solve a problem. Not all
2 problems lend to the same strategy - so a person with fluency looks at the numbers in the problem to
3 make a decision about how to solve it.

4 Let's look at subtraction. A person who is fluent with subtraction looks at a problem like, $303 - 297$, and
5 notices that those two numbers are 6 apart. Therefore the answer is 6. Conversely a fluent person
6 would never use the regrouping algorithm for this problem because it is not efficient. How about 812
7 and 115 ? The difference here is not obvious, so a fluent person might subtract 112 to start, which
8 equals 700 and then subtract three more to get the answer of 697. These two examples highlight key
9 components of procedural fluency.

- 10 • First, looking for an efficient way to solve the problem.
- 11 • Second, being flexible - choosing different strategies for different problems.
- 12 • And, third, being able to apply these strategies correctly and get the correct answer.

13 These two examples also highlight the importance of conceptual understanding as a requirement for
14 fluency. So the first example requires knowing that subtraction means 'find the difference' and the
15 second strategy requires knowing that subtraction also means "take away". A student who only
16 understands subtraction as "take away" would not know they could just figure out how far apart those
17 two numbers are.

18 Procedural fluency applies to all computation, as well as other procedures like comparing fractions.
19 Which fraction is greater, three-eighths or three-sixths? A fluent student might recognize that one



20 fraction is less than one-half and one is equal to one-half or they might notice that sixths are greater
21 than eighths, and therefore 3-sixths is greater than 3-eighths. A fluent student would not find a common
22 denominator for this problem.

23 Thus, teaching for procedural fluency involves helping students understand strategies and algorithms
24 and helping them figure out when to use each. This shifts the student mindset from solving a problem
25 the way they think they are supposed to, to solving a problem in a way that they think is best . This
26 decision-making reflects the discipline of mathematics! By fostering such procedural fluency, we can
27 help students build confidence, improve problem-solving skills, and build capacity to truly think
28 mathematically.

