

What does the Progression document say about...

5.OA.1 Use parentheses, brackets, or braces in numerical expressions, and evaluate expressions with these symbols.

5.OA.2 Write simple expressions that record calculations with numbers, and interpret numerical expressions without evaluating them. *For example, express the calculation “add 8 and 7, then multiply by 2” as $2 \times (8 + 7)$. Recognize that $3 \times (18932 + 921)$ is three times as large as $18932 + 921$, without having to calculate the indicated sum or product.*

The progression document states:

Grade 5

As preparation for the Expressions and Equations Progression in the middle grades, students in Grade 5 begin working more formally with expressions.^{5.OA.1, 5.OA.2} They write expressions to express a calculation, e.g., writing $2 \times (8 + 7)$ to express the calculation “add 8 and 7, then multiply by 2.” They also evaluate and interpret expressions, e.g., using their conceptual understanding of multiplication to interpret $3 \times (18932 + 921)$ as being three times as large as $18932 + 921$, without having to calculate the indicated sum or product. Thus, students in Grade 5 begin to think about numerical expressions in ways that prefigure their later work with variable expressions (e.g., three times an unknown length is $3 \cdot L$). In Grade 5, this work should be viewed as exploratory rather than for attaining mastery; for example, expressions should not contain nested grouping symbols, and they should be no more complex than the expressions one finds in an application of the associative or distributive property, e.g., $(8 + 27) + 2$ or $(6 \times 30) + (6 \times 7)$. Note however that the numbers in expressions need not always be whole numbers.

The associative $[(a + b) + c = a + (b + c)]$ and distributive $[a \times (b + c) = (a \times b) + (a \times c)]$ properties provide guidelines for dealing with number sentences with more than one operation. Students will benefit from having a good understanding of these properties and how they work before they are introduced to the conventions in the order of operations. This understanding allows them to calculate numbers in a sequence without thinking too much about the order. When doing problem solving in your classroom, show students notation that involves the use of parentheses and mixed orders in order to engage them in the idea that we don't always calculate from left to right in every situation.