The Common Core Standards focus on Number and Operations in early grades. And number and operations is usually a single strand in state standards, but in the Common Core Standards there are three domains in this area: Operations and Algebraic Thinking, Number and Operations in Base Ten, and Number and Operations with Fractions.

One reason to distinguish these three things is to highlight the sense in which operations are the same no matter what students are operating with.

Addition, subtraction, multiplication, and division have meanings, mathematical properties, and uses that transcend the particular sorts of objects that one is operating on, whether those be multi-digit numbers or fractions or variables or variable expressions.

And so operations and algebraic thinking domain is the one that evolves most directly into middle grades expressions and equations.

The strategies and algorithms that students use to add multi-digit numbers differ from the strategies and algorithms that they use to add fractions, but in both cases they are adding; they are using an operation of joining or increasing.

They are using an operation whose meanings and uses and mathematical properties are the same in either case.

And in the domain of Operations and Algebraic Thinking, it is those meanings, properties, and uses which are the focus. And it is those meanings, properties, and uses that will remain when students begin doing algebra in middle grades.

So arithmetic in the Common Core Standards is both an important skill set, as well a rehearsal for algebra.

[1:52 minutes]

Source: https://www.youtube.com/watch?v=HMMe8_4s9KE&index=9&list=PLD7F4C7DE7CB3D2E6