

Transcript – Developing Fluency

Using strategies such as the ones we've just explored for addition helps students develop mental constructs for properties of operations, which are the building blocks of algebraic properties. Fluency is developed by studying basic facts and by examining and using relationships among facts. This allows for “algebraic reasoning” including taking apart, working with pieces, and putting back together, thinking about the meaning of operations, and developing number sense.

How could we take the strategies from the Make-a-Ten methods and extend them beyond whole numbers?

As we saw in the grades 4 and 5 activities, instead of decomposing and composing to make-a-ten, we apply the strategy of breaking numbers apart and implicitly using the associative property to make one whole when adding positive rational numbers.

In grade 6, we see decomposing and composing to make-a-zero to add integers.

In grade 7, we see decomposing and composing to make-a-zero to add rational numbers.

In these activities, we see possible strategies that allow students to build on conceptual understanding and numerical fluency.

It should be noted that the use of strategies also applies to other concepts and operations, but for the purpose of this module, we will only focus on addition.