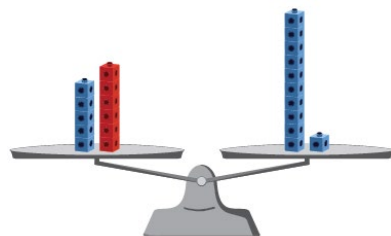


# Activity 9 Assessment Strategies for Solving Equations

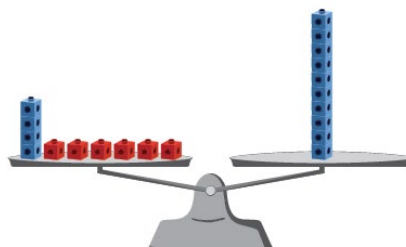
## Solving One-Step Addition and Subtraction Equations

Understands balance as equality



"5 + 6 equals 11."

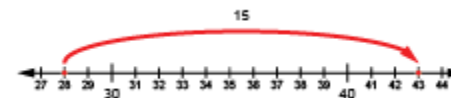
Uses concrete materials to solve for unknown



$$4 + \square = 10$$

"I added red cubes, one at a time, until the pans balanced;  $\square = 6$ ."

Uses number relationships (inverse operations)



$$28 = \square - 15$$

"I rewrote the equation as an addition equation:  $28 + 15 = \square$ ."

## Observations/Documentation

## Activity 9 Assessment

### Strategies for Solving Equations

#### Solving One-Step Addition and Subtraction Equations (con't)

Decomposes and recomposes numbers (uses associative property)

$$\begin{aligned} 28 + 15 &= 28 + 2 + 13 \\ 28 + 2 + 13 &= 30 + 13 \\ 30 + 13 &= 43 \end{aligned}$$

Describes a situation for a given equation with an unknown

$$20 - \square = 13$$

"I had \$20. I spent some money and now I have \$13.  
How much did I spend?"

Uses strategies efficiently and flexibly to solve equations of different types (start, result, and change unknown)

$$27 = \Delta - 18$$

"I rewrote using addition:  $27 + 18 = \Delta$ .  
Then, I used mental math:  $27 + (18 + 2) = 47$ ,  
and  $47 - 2 = 45$ ."

#### Observations/Documentation

## Activity 9 Assessment

### Strategies for Solving Equations

Variables and Symbols			
<p>Uses equal sign as balance (left side equals right side) and not equal sign as imbalance</p> $18 + 16 = 10 + 24$ $18 + 16 \neq 24 - 10$ <p>"The equal sign means that the numbers on both sides are worth the same amount."</p>	<p>Uses symbols to represent unknown quantities</p> $18 + \square = 34$ <p>"I used a box to represent the unknown, but I could have used a different shape."</p>	<p>Understands the unknown represents one quantity/value</p> $18 + \square = 34$ <p>"The box represents a number that would be added to 18 to make 34. No matter what the symbol is, it will always represent 16."</p>	<p>Solves equations flexibly</p> $18 + \square = 34$ $34 - \square = 18$ $34 - 18 = \square$ <p>"In all of these equations, the symbol represents the same number, 16."</p>
Observations/Documentation			