

Use place value understanding and properties of operations to add and subtract (Standards 4–6).

Standard 1.NBT.4 Add within 100, including adding a two-digit number and a one-digit number, and adding a two-digit number and a multiple of 10, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used. Understand that in adding two-digit numbers, one adds tens to tens and ones to ones, and that it is sometimes necessary to compose a ten.

Key Elements:

Foundational Addition and Subtraction concepts: properties of addition and subtraction, concrete models for addition and subtraction, drawings for addition and subtraction

Addition Operation concepts: making a ten, add tens to tens and ones to ones, adding 2-digit number to a 1-digit number (65 + 3) , and 2-digit number + mult of 10 (42 + 30)

Properties of Addition and Subtraction/Concrete Models

Students need to understand that in addition, there are two parts joined together to make a whole (part + part = whole). Students will also need to understand that in subtraction, we start with a total, then a part is taken away and leaves another part remaining (whole - part = part). Using manipulatives in a part-part whole model, math mountain, using unifix cubes, etc. to “act out” what is taking place in each equation will be extremely helpful to making connections for students. Once these conceptual understandings have been formed, students can use drawings and eventually numbers to represent what is going on in the equation.

	Part-Part-Whole	Math Mountain	Unifix Cubes
Addition Models	$\frac{4}{\text{Part}} + \frac{3}{\text{Part}} = \frac{7}{\text{Whole}}$	$\frac{4}{\text{Part}} + \frac{3}{\text{Part}} = \frac{7}{\text{Whole}}$	$\frac{4}{\text{Part}} + \frac{3}{\text{Part}} = \frac{7}{\text{Whole}}$
Subtraction Models	$\frac{5}{\text{Whole}} - \frac{3}{\text{Part}} = \frac{2}{\text{Part}}$	$\frac{5}{\text{Whole}} - \frac{3}{\text{Part}} = \frac{2}{\text{Part}}$	$\frac{5}{\text{Whole}} - \frac{3}{\text{Part}} = \frac{2}{\text{Part}}$

Drawings for Addition and Subtraction

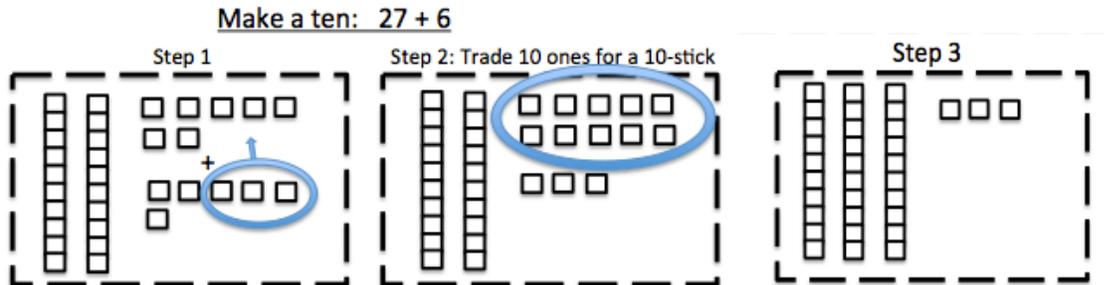
Teachers may choose to teach the following quick draws for addition and subtraction:

$$4 + 3 = 7$$

$$5 - 3 = 2$$

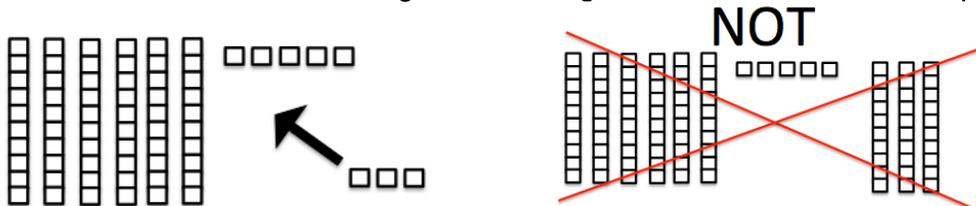
Making a 10

Students will need to know that sometimes in addition when adding like terms, there are more than ten of a specific unit created. In the below example, there are more than ten ones when the ones are combined. In this case, a new ten needs to be formed by trading out ten of the smaller unit for one of the next unit up (10 ones for 1 ten and 10 tens for 100).



Adding a Two-Digit Number and a One-Digit Number

Two critical understandings here will be for students to ensure they aren't confusing the meaning of digits in the numbers and that they are adding like terms. Base ten cubes are a helpful model here to illustrate the value of digits and adding like terms. See below example for $65 + 3$.



Adding Tens to Tens and Ones to Ones

When solving an addition problem with two two-digit numbers, students will need to add like terms. Base ten blocks are great at illustrating this.

Base 10 Blocks Addition

