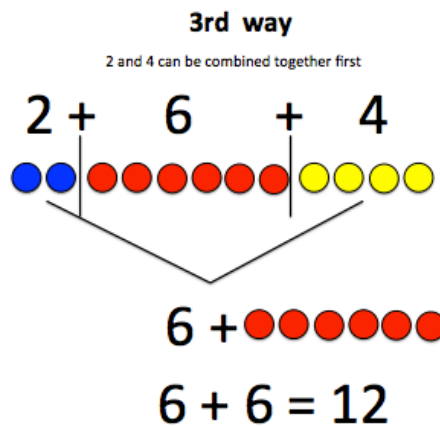
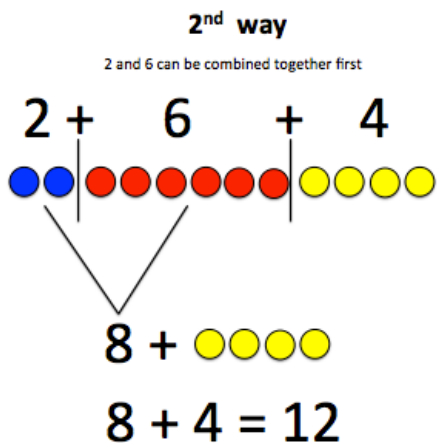
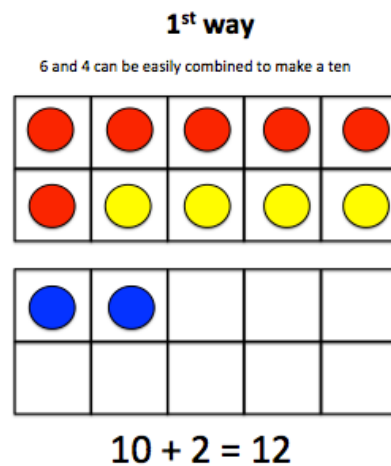
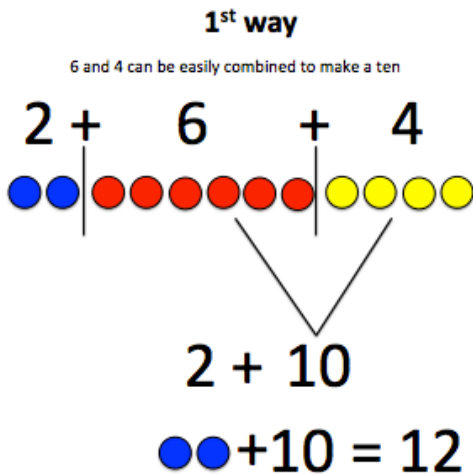


**Understand and apply properties of operations and the relationship between addition and subtraction**

**Standard 1.OA.3** Apply properties of operations as strategies to add and subtract. For example: If  $8 + 3 = 11$  is known, then  $3 + 8 = 11$  is also known. (Commutative property of addition.) To add  $2 + 6 + 4$ , the second two numbers can be added to make a ten, so  $2 + 6 + 4 = 2 + 10 = 12$ . (Associative property of addition.) First grade students do not use formal terms for these properties.

**Key Elements:** Students should be able to use the associative and commutative properties of addition as number partners when joining groups.

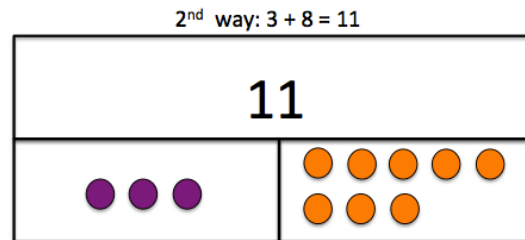
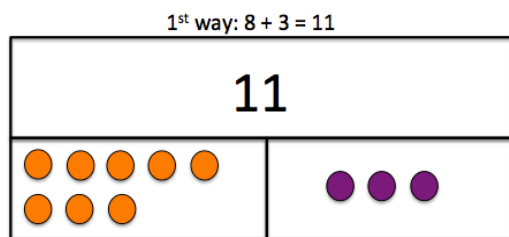
**Associative Property:** numbers can be combined various ways without the total changing



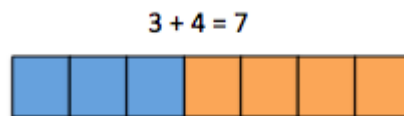
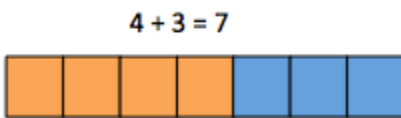
**Commutative Property:**

1st way: Partner A + Partner B = Total       $8 + 3 = 11$   
 2nd way: Partner B + Partner A = Total       $3 + 8 = 11$

<b>TOTAL</b> (sum)	
<b>PARTNER A</b> (addend)	<b>PARTNER B</b> (addend)



**Unifix Cubes:** Unifix cubes are a good way to demonstrate to students the commutative property. Students can clearly see that the order numbers are added together does not change the overall result.



### Inverse relationship between addition and subtraction

When solving subtraction equations, students often use addition to solve subtraction due to the fact that these are inverse relationships.

To model this, you can have students use one specific fact family (in this case, 2, 3, 5) and then use cubes or other manipulatives to model/explore the relationship.



If students understand the inverse relationship between addition and subtraction, they can use addition to solve a subtraction problem (1.OA.4).

