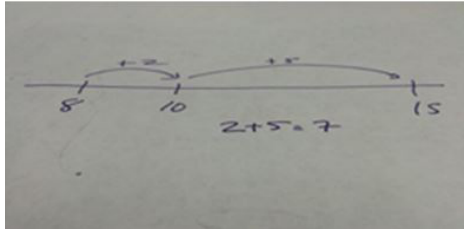




What do I need to know as a teacher in order to be able to teach the concept(s)?

+Potential Misunderstandings

The Question: (Focusing on the Misconception)	The Follow Up Question that will challenge the assumption.	Background Info
<p>You can't subtract a bigger number from a smaller number.</p> <p>Ex. $3 - 5$ is impossible.</p>	<p>If it is 3°C and the temperature drops by 5°, what is the temperature now?</p>	<p>Misunderstanding: Students can struggle with the idea of removing more than you start with.</p> <p>Temperature is an excellent tool for developing this concept appropriately as it is a natural situation where negatives exist. Another opportunity for exploration could focus on wanting to buy an item but not having enough money. Example, you have \$10 but the item costs \$15. How much money are you short? How much do you have to borrow from your parents in order to buy it? How much do you owe them?"</p>
<p>Subtraction is commutative. It doesn't matter what order you do it in.</p> <p>Ex. $3 - 5$ is the same as $5 - 3$.</p>	<p>Is "I have \$3 and spend \$5" the same as "I have \$5 and spend \$3"?</p>	<p>Misunderstanding: Students learn that addition is commutative so it doesn't matter if you do $2 + 4$ or $4 + 2$ because you get the same answer. They transfer this concept to subtraction. It is compounded by the misconception that you can not subtract a bigger number from a smaller number.</p>

<p>When “more” shows up in a word problem, I have to add.</p>	<p>Johnny has 10 pencils. Suzy has 15 pencils. How many more pencils does Suzy have?</p>	<p>Misunderstanding: Word problems have cue words that will tell you what operation to use. Ex. “More” means you have to add. Cue words on their own do not tell you what type of operation to use. Students must carefully analyze the problem, using all of the information provided in order to determine the appropriate operation(s) to use.</p>
<p>In order to solve the following question, you must subtract.</p> <p>“Suzy has 15 pairs of shoes. She donates 8 pairs to Value Village. How many pairs does she have left?”</p>	<p>Johnny solves this question as</p> 	<p>Misunderstanding: Students see addition and subtraction as discrete operations rather than inverse operations. However, all subtraction sentences can be solved by thinking additively.</p>

