

Misconception Chart

Strategies & Models of Thinking	Possible Problems	Big Idea or Goal	Questions
<p>Multiplying and Dividing</p>	<ul style="list-style-type: none"> → Students will struggle to understand why they have multiplied or divided → Many students have not understood why a group of ten can be 1 and ten things 	<p>Unitization: Students at this stage are attempting or have understood the concept to group things and how they can both represent 1 and many things at the same time</p> <p>Students are working towards articulating that in every box there is ten things but you have one box so 1 box= 10 and that students can look at the ten's place value and see both the box and what is inside of it (this goes for any of the place values 1 pack= 100, 1 carton= 1000, etc)</p>	<ul style="list-style-type: none"> → How can a group be 1 and ten? → Why did you multiply?
<p>Place Value Students whom are using T-charts, may only be adding certain place values, at the beginning they are drawing pictures</p>	<ul style="list-style-type: none"> → Students will struggle to know which number goes into what place value → Students will also be fine with some of the smaller numbers but as you move into the higher place values they struggle (i.e: students can figure out the boxes if they are in the tens but then struggle when you make a three digit number) → Students will also break the numbers up into smaller groups of tens (i.e.: 70= 10 + 10+ 10+ 10+ 10 + 10+ 10, instead of just recognizing it as 7 10's) this often happens at the beginning stages of the strategy development → students who struggle with the addition this is the strategy that I try to lead them too 	<p>Unitization is still the big idea here students need to understand the concept of grouping things and how they can both represent 1 and many things at the same time</p> <p>Having the students recognize what happens at certain intervals is critical (i.e.: What happens every ten boxes? How many things is that?)</p> <p>Starting with the smaller numbers is essential for development</p>	<ul style="list-style-type: none"> → What happens every ten boxes? Hundred? How many things is that? → What patterns are you noticing?
<p>Pictures: Boxes of Ten</p>	<ul style="list-style-type: none"> → Many students struggle to understand how 1 group can also represent 10 things (especially if they are just beginning to learn multiplication) → When students are struggling, suggest to students that they draw out the boxes 	<p>Students are at the beginning stages of unitizing</p> <p>Students may still need help counting and organizing numbers</p>	<ul style="list-style-type: none"> → What do you notice happens every ten boxes? → What do you notice between the boxes and the numbers? → How many things go in a box? → Are you noticing any patterns? → What happens when you get to 100 things? How many boxes?
<p>Row Addition</p>	<ul style="list-style-type: none"> → This is the most common method of work for students. They will add all of the items up and then place them into boxes → Many students use the total as the boxes → Many add incorrectly because by confusing the digits and the actual values of the number (i.e. 70 +70 = 140 not 7 + 7= 14. In the example, students often say 7 + 7 = 14 because they only look at the digit) 	<p>Many students feel comfortable doing what they think you want to see</p> <p>They see the word total and assume you mean add</p> <p>Students who do not have a strong place value foundation will struggle with this strategy and it is important that they go back to adding</p>	<ul style="list-style-type: none"> → For 70+70=140 instead of 7+7=14 is the 7 the same as 70? Which number is greater? Why then did you say 7? → Show me seven cubes. Is this the same as 70?