



Welcome fellow Recovering Traditionalists to Episode 129. Today we are looking at Taking it a Step Further with Fractions & Subitizing.

In episode 128, I shared some sneak peeks from the 2022 Virtual Math Summit that encouraged us to do things differently. Well, for this episode you don't need to change anything, but I wanted to share two ideas from the summit on how to take something you are already doing and take it a step further.

There is a lot that we are doing in math education that is a great base of understanding for kids but it doesn't quite give them everything they need.

One of those areas is how kids view fractions and another is how we view Subitizing activities. In our Virtual Math Summit sneak peeks this week, Dina Mendola is going to push us to take the understanding of fractions as a Part-Whole relationship a bit further and expand it into a measurement view. And you'll also get to hear a snippet from my session about how subitizing needs to lead into helping kids with visualization.

Don't forget that the summit is completely free to attend. You can register at VirtualMathSummit.com/register The sessions will be released on February 26th and 27th but you have 10 days to watch them.

If you want longer access to watch the sessions, and more interaction with some of the presenters, you can do one of the paid levels of the summit. Just go to VirtualMathSummit.com/register to see the options and get registered.

Some of the sessions at the summit are general information that applies to all grade levels, but some sessions are specific to a grade band. Dina Mendola's session is one of the 3rd-5th grade sessions. Her session, The Struggle is Real...Fear not the Fraction, gives us a lot to think about with how we help kids build their understanding of fractions. One of the things she pushes us to think about is getting past the understanding that fractions are just "part out of whole":

Dina: "The 'part-whole' world of fractions really involves a lot of experiences that our students tend to encounter when it comes to fractions. So if you think about it, they're usually in terms of pizzas, pies, brownies, and the idea of deconstructing something physical or imagined. And then we end up talking about 'so many out of so many.' It's this idea also of shading and counting. So if you think about it, it really can be a counting based strategy.

So for example, here, to determine this amount, I might go one, two, three and then realize if I keep counting, that three are shaded out of six pieces. So thinking about that, it really comes down to counting based type of activity within there.

There's a lot of work that's done with our students when it comes to partitioning a whole and identifying those pieces within that whole. Parts within whole is a super important first step towards understanding fractions, as it really helps to determine this idea that these equal shares have to look alike and they have to fill up and exhaust the whole.

This is a foundational way to thinking that those parts are equal in relationship to that whole. However, so many of our students get stuck here and it therefore limits their ability to extend to other fractional work because they have not yet developed a multiplicative relationship.

So then the question becomes, how do we move them out of the Part-Whole world and into the world of Measurement? Let's take a moment to explore the Measurement world when it comes to fractions. The Measurement world starts to look at fractions in a different light and it incorporates some additional mental gymnastics when it comes to unit coordination. This idea of fractions as an iterrable, or a repeated unit, really starts to develop a multiplicative relationship rather than an 'out of something' relationship. It starts to help students see fractions as numbers, as an object and a size that has numeric value.

When we think about that, this movement into the measurement world really opens up doors to finding equivalency, common denominators, and a deeper understanding when it comes to relationships with units in fractions. So the question becomes, what are some activities that we can do to move students from the Part-Whole world into the Measurement world?"

So kids do need part-whole understanding of fractions, but we can't leave it there. We need them to see fractions from the measurement view as well. This was new to me a few years ago, but once I was able to build my understanding of fractions as iteration, it totally changed my relationship with fractions.

Another thing that is fairly new in math education is Subitizing. Here is a sneak peek at my Virtual Math Summit session about going from Subitizing to Visualization for PreK-2nd grade:

Christina: "But I'm holding up two fingers. Right? And you could just tell it's two and you didn't have to count that it was two and you weren't putting one and one together to make the two, you just knew it was two. That's perceptual subitizing.

As you get into larger amounts, typically, you are doing conceptual subitizing, where you see chunks, and then you're putting those chunks together. So for the apples there, kids might count to be able to do that. Some of you might have seen, I was about to say four, but then I was like, that's not four as I looked at that, that was actually a group of five. My mind didn't see five, but it saw four. And then there was an extra one off to the side and another extra one off to the side. So your mind can see small groups and then we can put those groups together, or we end up counting one by one by one. But subitizing is instantly telling how many without needing to count.

So one of the typical activities that we like to do is something called Quick Images. So when you first start with subitizing, right, you start with an amount and you just ask them how many. And you're going to see some kids who will count those dots, but you will see some kids who just know instantly that that is three. So we want kids to be able to just instantly know it. But we also sometimes like, we feel bad if we make that disappear because you know some kids are still counting. But we do need to get to a point where that disappears. We don't always want it there because we do want to encourage kids not to count. Right? We will want them to see it and just know.

But we also, as we take it away, we are encouraging that visualization. We're encouraging them to hold an amount in their mind. So you can show it and then have it gradually disappear. Right? If you don't want it to instantly disappear, it needs to at least gradually disappear so that they can still see it as it's fading away. And if they're needing to count, it gives them a few seconds to be able to do that.

But eventually, we do want to have it there and then take it instantly away. If you didn't see that, if you were looking elsewhere, I didn't give you a warning. Right? We can have it there and then instantly take it away. And then as we go back, so come back, if you're not looking at your screen, come on back. Even as it gets larger amounts, we want to show it and then have it instantly go away. Right? We want to show amounts that are subitizable, but then have it go away so they have to try to conjure that image back up. And again, you could show it again and then

have it go away. But we want it to be instantaneous. Okay? As quickly as we can put it up there, we want to take it away so that it encourages them to see those groupings but then also to visualize what they just saw.

If we leave it up there too long, it allows them to count, but it allows them to rely upon the counting and rely upon that image being there. We want to encourage the visualization, even as we get into larger amounts.”

This is just one way to take subitizing a step further to encourage more visualization from your students. In the session, I give 4 types of activities you can do to help your students visualize while also subitizing.

If one of these ideas about taking your instruction a step further has you wanting to learn more, come register for the 2022 Virtual Math Summit - it's free. Go to VirtualMathSummit.com/register. You can attend just one session or all 31 sessions.

I hope these snippets helped build your math mind so you can build the math minds of your students.

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