



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

+Key Ideas

1. Equal in math refers to quantity. $5 = 5$ is a valid equation. You can compare 2 sets based on how many objects or you can compare using a unit of measure of weight, length, time, volume, area etc. The “scale” can create interference because many children have experience with weight. Balancing an equation is not weighing it.
2. Students need vast and varied continuing experiences with equations that include expressions on either side or both sides. At all grade levels. When using objects avoid naming the objects as in 5 trees equal 5 bears.... Five equals five. There is no unit other than the number itself. Cuisenaire rods are actually measures of length... when using them students should be thinking the length of the orange equals the length of the red plus the brown.
3. Students need to make sense of balance as a metaphor, not as a measure of weight but of quantity. A balanced equation means both sides equal the same amount.
4. Students need to see and read equation written with expressions on the left or both sides.... there is not nearly enough exposure in any of the “standard” resources. ACROSS the GRADES, consistently. $6 = 2 + 4$ is just as valid as $2 + 4 = 6$
5. Equal comes before writing equations.... equal means the same amount as or the same amount of weight, height, time, volume, area as.
6. When you demonstrate or build equalities you can separate the 2 sets with an equal sign between them or you can see they are embedded in each other... I see $3 + 7$ and $2 + 8$ are both in the ten frame. I do not pull them out and put them side by side. But I could.
7. Making equal groups is an important idea that also needs to be attended to and this starts in Kinder and Grade One as well. It is not just about division. The ability to divide an object or set of objects into equal groups appears to be critical to the logical development of part-whole and part-part relationships and notions of equality and inequality.

Please Note: STUDENTS MUST engage in experiences with changing the nature of the “unit”.

