

Math 121: Standard Addition Algorithm FORM C Spring 2011

We defined addition as: “combining two groups of known sizes together, and counting the things in the resulting large group.” Our job is to explain why the standard addition algorithm is equivalent to counting a giant pile of things.

The standard addition algorithm works because we are working on one place value at a time. In particular, we start with the ones place, then move to the tens place, and continue moving to the left until we run out of places.

The reason why we do this is that it simplifies addition. We do not need to worry about the entire numbers, but rather just a small portion (one place value) at a time.

The main tricky part of this algorithm is that sometimes you need to regroup, or “carry.” This happens when, after adding together a place value, you end up with at least ten “blocks” (or rods, flats, cubes, etc). If you end up with at least ten blocks, you need to regroup ten of the blocks into one rod (or flat, cube, etc.). Since you work from right to left in this algorithm, you can defer counting the rod until you move on to the “rods” place value.

This deferring of counting the new “rod” is another reason why this algorithm simplifies addition. This is very similar to the rest of the algorithm—it allows us to focus on only one place value at a time.