Estimation Instructions

Note- Though following set steps for estimation impedes the thought and numerical fluency gained from the practice, here are some steps to help struggling students get started on estimation. As students gain more numerical fluency these rules should subside to their logical analysis. Useful estimation should not require paper and should be performed easily in few seconds with mental math.

1. Multiplication
	1. Round each factors to easy multiplication numbers followed by zeros
	2. Multiply these factors and add the total zeros to find a product
	3. Consider how rounding has affected the estimate, and predict how the actual answer will differ
2. Division
	1. Round the divisor (going into number) to its highest (first) place value
	2. Round the dividend to an easy multiple of the rounded divisor (note- this may not following traditional rounding rules)
	3. Cancel matching 0’s
	4. Divide
	5. Consider how rounding has affected the estimate, and predict how the actual answer will differ
3. Addition
	1. Round both addends to numbers that you can personally add using mental math (be careful to line up place values)
	2. Add
	3. Consider how rounding has affected the estimate, and predict how the actual answer will differ
4. Subtraction
	1. Round both values to numbers that you can personally subtract using mental math (be careful to line up place values)
	2. subtract
	3. Consider how rounding has affected the estimate, and predict how the actual answer will differ