Tying Shoelaces

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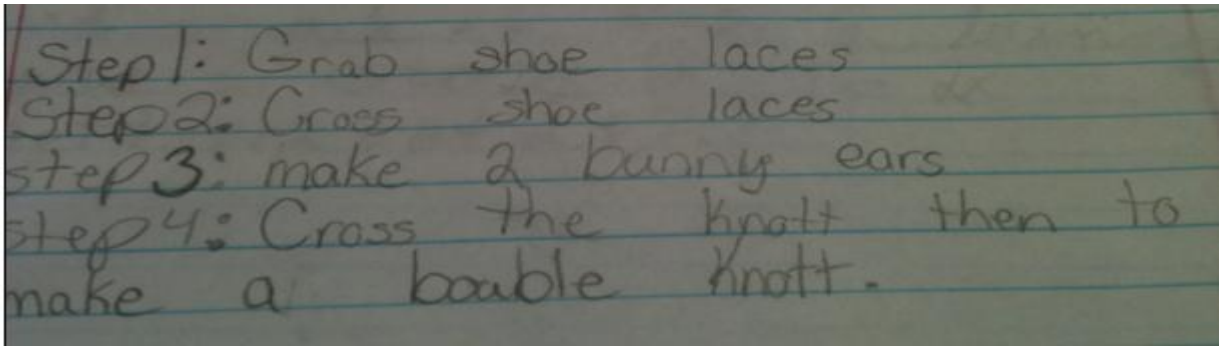
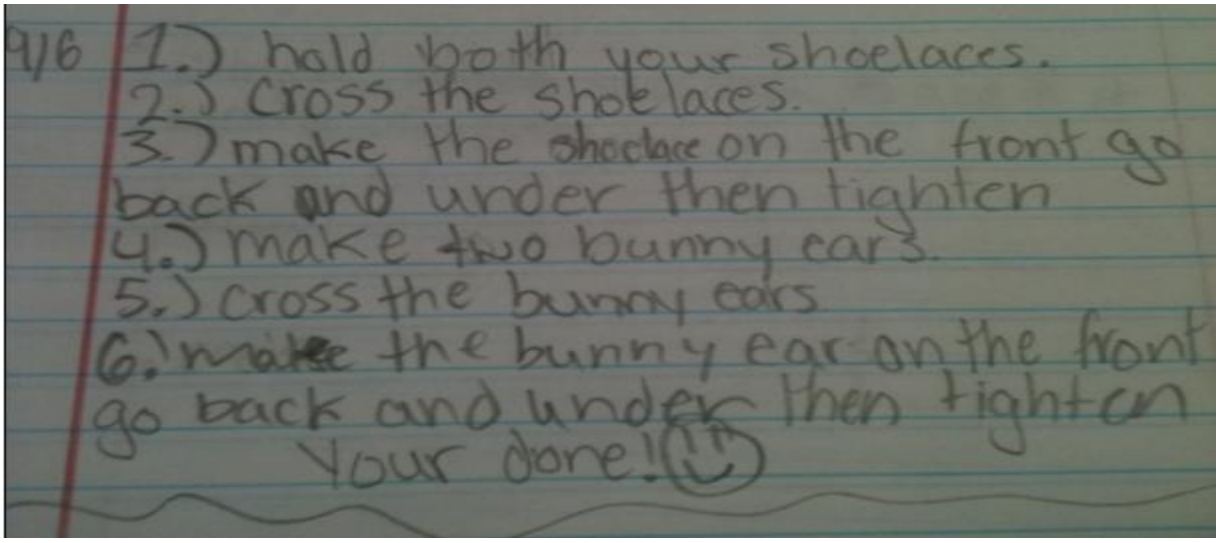
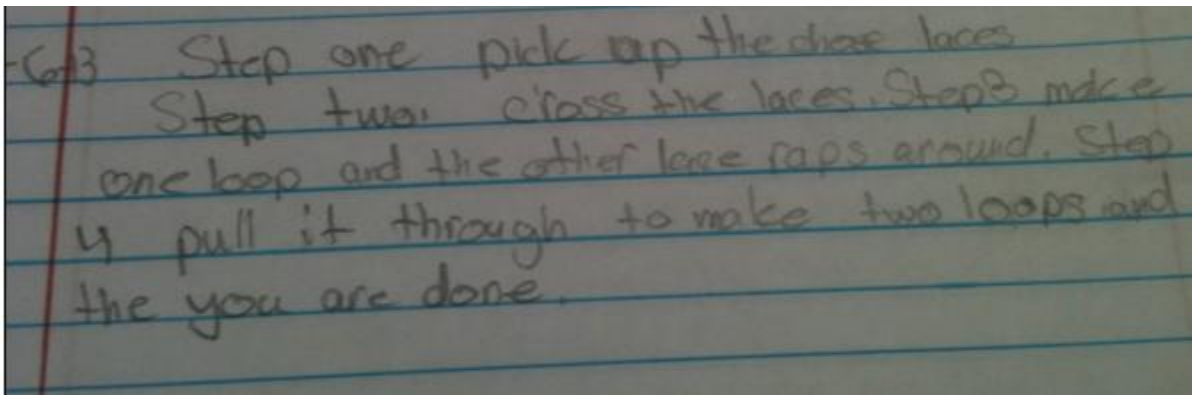
In Unit 2 students create a method--a statistic-- to estimate ("find the best guess of") the true measure of a length using the sample of measurements they generated. My students often struggle with the very idea of writing a procedure. They are familiar with algorithms but have never thought about writing one. To prepare students, I ask them to write a procedure about how to tie shoelaces. After about 5-7 minutes, one student reads his or her procedure while another student follows it, often with humorous results. We circulate procedures until someone correctly ties their shoes. If at least two students can follow the procedure, we talk about why this is so. Students learn to think about how they might express this familiar activity as a series of steps and how to do so in a manner that is clear enough to share. I usually pose this problem as a "bell ringer," outside of regular instructional time. I find that this experience is a great resource for students as they create shareable ways to estimate the true length. They more clearly understand the need for clear steps written so that other people will get the same results.

Student solutions range in sophistication, but here are a few:






6.3 Step one pick up the shoe laces
Step two. cross the laces. Step3 make
one loop and the other lace raps around. Step
4 pull it through to make two loops and
the you are done.