Additional Scenarios for Math Lesson 1a

Using an Algorithm-Building, Lecture-based Approach with Individual Practice

The algorithm-building lecture approach is based on procedural-based algorithms used to solve mathematical problems. Observing the students as they practice these procedures and correcting any procedural errors in which they are applying are the main roles of the paraprofessional in this type of classroom. Read the following scenarios and answer the question on how to assist the students in an algorithm-building, lecture-based math course.

Scenario 1 (Kindergarten – 4th grade)
In a first grade class, the students are learning to identify the whole numbers on the number line. The procedure that has been taught to the class is to find zero on the left hand position of the number line and count the number of positions to the right of zero to determine where to plot each given whole number. Assume you are working as a paraprofessional in this classroom and you note that one student is plotting all her answers one position to left of where the correct placement should be. What advice could you give this student to correct her procedural error?

Scenario 2 (5th Grade - 8th grade)
A seventh grade class is learning how to add logarithms with common bases. The procedure is to create a single logarithm with the same base as the logarithms in the sum and to multiply the numbers at which each logarithm are evaluated in the sum (\( \log(m) + \log(n) = \log(mn) \)). You are working as a paraprofessional in this classroom and you note that one student is arriving at incorrect solutions. What part of the procedure would you check for errors first?

Scenario 3 (High School)
A geometry class is studying the characteristics of congruent triangles. The students are being taught that if two triangles have two corresponding sides that are equivalent in length, along with the corresponding angles between these sides being of equal measure, then the triangles are congruent (Side-angle-side). Each student is practicing this technique of identifying congruent triangles by measuring the sides and angles of a series of given triangle and pairing the congruent ones. Suppose you are a paraprofessional observing the students as they work on these problems, what would you believe might be the most common error the students would make in this exercise?