

Challenge Problems – Building New Pathways

Challenge problems are designed to be done in about 15 minutes in class. After many years of teaching, I realized that too many of my students depended on others to do their thinking for them. They learned math largely by memorization. Very few students had the confidence to ‘figure out’ problems on their own. When presented with a problem they would try to ‘remember’ how to solve it. Especially the ‘good’ students, the ones who usually got A’s. They were not ‘risk takers. They would only feel comfortable solving problems they had been taught how to solve using methods that they had been shown and memorized. These problems do emphasize every day concepts, but do not build on each other. Over time, I found that students developed new pathways in their own problem solving abilities. Many of the problems require students to make diagrams illustrating the problem situations. The students are also required to write (a paragraph) to explain their reasoning. In the end, students, working independently, in the classroom, are expected to (1) read and analyze the problem themselves, (2) decide on a solution pathway and solve the problem, and (3) write a complete explanation of their thought process. The rubric is designed to encourage all parts of the solution process. It works.