Danielson Framework for Teaching

Math Cluster (p.14)

Designing (or locating) suitably demanding learning tasks for students is one of the most challenging aspects of mathematics teaching; tasks that allow for multiple solution paths, have a context that is accessible and interesting to students, and that highlight important mathematics. Moreover, a task that is challenging for one student may be routine for another. One can analyze the cognitive demand of a task, whether the task is suitably rigorous or appropriate for an individual student is determined by the level of knowledge and cognitive development of the student. Thus, a task, in and of itself, is not rigorous or routine; what makes it rigorous or routine is the gap between the demands of the task and the current capabilities of the students who are asked to complete it. If the gap is too small or nonexistent, the task is routine and boring; if the task is too great, the task may be overwhelming. Like Goldilock's porridge, the gap should be "just right". One technique to address this challenge is to assign tasks with a low floor and high ceiling – that is tasks that are accessible to all students, but that, through their expansion, or through the teacher's asking a more demanding follow-up question, can challenge the more advanced students in the class. Employing this technique is not a simple matter and is developed only after considerable experience.