Science Projects that Model Science

Science teachers are familiar with the script: We have students look through the books (and now web sites) to find a project to complete for the upcoming science fair when parents and community arrive at the school and tour the rooms full with display boards showing questions, hypotheses, data, and conclusions. The rationale is that we are giving students experience with "the scientific method."

Illustration 1: Traditional science fair projects: Many questions answered by one method each.

Unfortunately, that script causes us (and our students) to avoid one of the most important aspects of science: the work of questioning "How do you know?" I propose a simple change in the script that will open this question to us and our students.

Rather than having students each choose their own topic and question, I propose all of the students answer the same question. Further, I propose all students create their own methods and data analysis procedures for finding the answer.

Certainly teachers are going to supply all students with the framework of science to help all students with methodology. Ideas such as variables, controls, and treatments will be essential to all students, but how they interpret those and apply them to their own methods will become the real lesson of this type of science project.

My mentors when I was first studying middle school curriculum (back in the late 1980's and early 1990's) were fond of recommending some curriculum be a "mile wide and an inch deep" while other curriculum be "an inch wide and a mile deep." Following those criteria, science fair projects in which all of the students answer the same question, and come to understand how they answered the question will be curriculum that is narrow and deep.

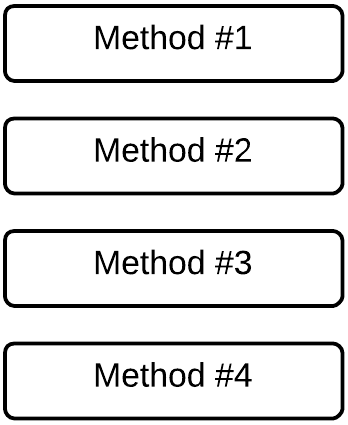

Illustration 2: Alternative: One question answered by multiple methods.